



# **CITY OF LOWELL**

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## **OPEN SPACE AND RECREATION PLAN**

**PREPARED BY:  
OFFICE OF THE CITY MANAGER  
DIVISION OF PLANNING AND DEVELOPMENT  
JULY 2005**







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# **SECTION I**

## **PLAN SUMMARY**

The 2005 Lowell Open Space and Recreation Plan was prepared in-house by the City of Lowell's Division of Planning and Development. It is a rewrite and update of the 1994 Plan prepared by the regional planning authority, the Northern Middlesex Council of Governments.

This Plan aims to guide and shape open space and recreation public policy in the City of Lowell over the next five years. The objectives and action plans recommended in this document are the result of much data gathering and research, and a long community participation process encompassing phone surveys, a public meeting and a month-long commenting period.



## SECTION 2

### INTRODUCTION

#### A Statement of Purpose

This document encompasses many of the environmental issues that are important to this City and its residents such as preservation and protection of open spaces, vegetation, wildlife habitats and historic resources. The Plan encourages an overall greening of the city, especially in urban areas where more trees and recreational spaces are needed. This document also calls for a better integration of local and regional open spaces and goals, as well as more linkages between parks and other recreational areas within the city itself. We hope that the end result of all of these objectives is to foster community pride and unity through an increased use and appreciation of Lowell's open spaces, recreational services and natural environments.

This plan aims to continue the good work that has been done in the past. Since the last Plan was written, many accomplishments have been made relating to open space and recreation. Among them, several stand out in significance:

- The City transferred control of 8.5 acres of riverfront property to the Massachusetts Department of Conservation and Recreation for the construction of a boat ramp. The construction was completed in the Spring of 2004.
- The City acquired 8.5 acres of land on Edwards Street and created new soccer fields.
- The Lowell Parks and Conservation Trust constructed a new  $\frac{1}{4}$  acre park on the Concord River. The City also gave six tax title and water rights parcels to the Trust for permanent protection as part of the Concord River Greenway. The City is currently moving ahead with this local land trust to establish the Greenway, which will eventually link to several parks in Lowell and walking trails in the Downtown including the Riverwalk. The Concord River Greenway will also connect to the Bruce Freeman Trail in Chelmsford and the regional Bay Circuit Trail.
- Another local land trust, the Friends of the Forest, acquired nearly 7 acres of open space next to the State Forest through the implementation of the City's Planned Residential Development zoning tool.
- The City received a Brownfields Cleanup Grant for \$255,040 from the U.S.



Boardinghouse Park during the Lowell Folk Festival  
*Photo – Higgins & Ross*



Hosford Square

*Photo – DPD*

Environmental Protection Agency, which will be used to remove underground storage tanks and clean the site of the JAM Plan Parking Garage in the future Hamilton Canal District. The City also just received \$57,500 from the State of Massachusetts Executive Office of Environmental Affairs for the further assessment of 221 Jackson Street, also part of the Hamilton Canal District.

The 2005 Open Space and Recreation Plan aspires to continue this track record of achievements by establishing a new set of priority objectives and action steps to meet present and future needs. They are outlined in Sections 8 and 9 of this document.

## **B Planning Process and Public Participation**

The City of Lowell received a grant as part of the Route 3 widening project to hire a consultant to conduct a phone survey that was designed to get a sense of the public's sentiment on open space and recreation in Lowell. The City hired Davidson-Peterson Associates (DPA) of Kennebunk, Maine to carry out the interviews. DPA surveyed a total of 261 Lowell residents on November 1 and November 10, 2002. Phone conversations were conducted in English, Spanish and Khmer. A total of 224 of respondents were recruited at random. In addition, a sample list of Cambodians was used to augment and assure a robust sample of this ethnic group. A total of 37 Cambodian respondents were recruited through the purchase of a phone list. Please see Section 7B for a more detailed discussion of the results and Appendix C for the executive summary of the survey.

In March of 2005, the City held a public meeting and presented a draft of the goals and objectives of the Open Space Plan. Notices were put in the local newspaper and were also sent to the various neighborhood organizations to inform residents about the meeting. Interested members of the public and neighborhood representatives were present and contributed constructive feedback. A draft was placed online on the City's website to solicit further comments. The City accepted public comments throughout the month of April after the draft was first presented in March. The final version of this plan was presented to the City's Conservation Commission, Planning Board, City Council and Mayor Armand Mercier for approval, as well as the regional planning authority, the Northern Middlesex Council of Governments.



## SECTION 3

### COMMUNITY SETTING

#### A Regional Context

The City of Lowell is located in Northern Middlesex County in the northeastern section of Massachusetts. The city is located approximately 25 miles north of Boston. The total area within Lowell's borders is 14.27 square miles. Of that number, the land area is 13.38 square miles with the remaining 0.89 square miles covered by surface water. The major bodies of water that have had tremendous impact on the development and history of the city are the Merrimack and Concord Rivers, which intersect near the Downtown.

Lowell was built primarily around the extensive industrial mill complexes along the Merrimack River. The Industrial Revolution of the 19<sup>th</sup> century gave the city its economic base, heritage, and character that are still prevalent today. Today, Lowell can be characterized as a highly urbanized community surrounded by wealthier suburban white-collar communities. In contrast to Lowell, the neighboring suburban communities of Tewksbury, Chelmsford, Dracut, and Tyngsborough have extensive open land.

#### B History of the Community

Lowell was remarkable among 19<sup>th</sup> century industrial cities for its quick ascent to fame, the symbolic value the city held for America, and the sheer enormity of its industrial processes. The physical remains of Lowell's industrial past, the 5.6 miles of canal ways, lock chambers, mills, boarding houses, bridges, and machinery, are monuments to the American Industrial Revolution.

Lowell was America's first large scale planned industrial community. It was incorporated as a city in 1826. By 1840, Lowell had become the principal manufacturing center of the United States and a model for many similar ventures. The transformation from rural community to industrial mecca occurred in less than two decades and was one of the most rapid industrialization processes the country had ever experienced.

Lowell's geographical location at the confluence of the Merrimack and Concord Rivers attracted settlers to its banks for approximately 10,000 years. The site first served as an ideal location for Native American fishing camps and then to early English settlers who made use of the rich farmland along the rivers' floodplains. During the Industrial Revolution, the two rivers provided an abundance of inexpensive yet reliable waterpower for the mills. The





Boott Mills courtyard

*Photo – UMass Lowell, Center for History*

level terrain and convenient access to Boston via the Middlesex Canal and to Newburyport via the Pawtucket Canal and the Merrimack River were also geographical advantages that drew settlers.

In the 19<sup>th</sup> century, Lowell's city designers designated mill sites and canal routes as their highest priority. To facilitate the use of river power, mill complexes were constructed along the banks of the Merrimack and Concord Rivers, where the force of the watercourses were greatest. As corporations were founded, an intricate system of canals evolved to provide the necessary power. Eventually, 5.6 miles of canals were constructed, cutting up the City into seven islands as they fanned out across the landscape. The rest of the community developed within the confines of the V-shaped wall formed by the mills.

With the expansion of the mills during the 1830s and 1840s, a large middle class grew in three adjoining areas. Chapel Hill was the first neighborhood to develop. Development then spread to the Belvidere section of the City. In 1834, the remaining land above Nesmith Street was annexed to Lowell, which was then sold to developers to build expensive homes during the 1840s. Centralville was settled next and was annexed to Lowell in 1851. The introduction of the streetcar in the 1890's led to the development of Lowell's outlying areas, such as Tyler Park in the Highlands neighborhood. Pawtucketville became a part of the City in 1874.

By the 1860s, Lowell could not keep pace with the very forces of the industrial system it had generated. As the 19<sup>th</sup> century progressed, conditions in mills and corporate boarding houses became worse as overcrowding became prevalent. Tenement buildings were constructed throughout the city, and the neighborhoods grew to their present size. Shortly after the turn of the century, Lowell's status diminished when the use of alternate forms of power production became widespread. It was also practical for many aging textile companies to move south where raw materials and labor were less expensive. For several decades, the City's economy stagnated and the mills and canals fell into disrepair. It would be many decades before efforts were initiated to reuse these impressive facilities.

Lowell has proven that historic preservation and urban economic development can work hand-in-hand to improve a community. Urban disinvestment and decline were a familiar sight in America's older cities in the mid-twentieth century. Lowell was no exception to this phenomena as the collapse of Lowell's once-thriving textile industry resulted in empty mill buildings and a decaying central business district. During the 1950s and 1960s, federal urban renewal funding became available to Lowell. Unfortunately, these efforts did not stimulate economic renewal and resulted in the demolition of some of the city's most significant millyards and tore apart several ethnic neighborhoods.

In the early 1970s, planning efforts began to focus on preservation as a core element of the City's revitalization strategy. The City established Lowell's first Historic District Commission and two local design review districts. Much of the Downtown, millyards, and canal system were placed on the National Register of Historic Places. The City invested in pedestrian improvements in the Downtown that recreated the 19<sup>th</sup> century

feel and provided design assistance for owners of historic properties. The establishment of the Lowell Heritage State Park in 1974 added credibility to Lowell's efforts to establish a National Park, and eventually lead to the creation of the Lowell National Historical Park (LNHP) in 1978 by federal law. That same law also established the Lowell Historic Preservation Commission (LHPC), which during its existence assisted with much of the historically sensitive building rehabilitation that took place between 1979 and 1995.

The LNHP and the City have played an important part in fostering many public and private partnerships that are responsible for the rehabilitation of over 250 structures in the Downtown, and the creation of extensive public programs to preserve and interpret the city's cultural resources. Several major mill complexes have been successfully renovated into housing and office spaces. Aluminum and stucco facades were removed from Downtown buildings to reveal 19<sup>th</sup> century commercial storefronts. The banks of Lowell's canals have been largely reclaimed, providing areas of recreational enjoyment and interpretation of the city's rich history. Streetscape improvements including brick pavement, granite pavers, period lighting and benches have all been placed to grace the Downtown and to enhance the 19<sup>th</sup> century urban character of the city.

Strengthening and expanding historic preservation regulation and review in Lowell was a requirement of the federal law that created the LNHP. In 1983, the Massachusetts Legislature established the Lowell Historic Board (LHB) and the Downtown Lowell Historic District (DLHD) to satisfy the federal requirements. As a result of this action LHPC, the original historic district commission was abolished and the two design districts were consolidated to form the DLHD. The Acre Neighborhood District (AND), a second design review district also overseen by the Board was created in 1999 to assist in the implementation of the Acre Neighborhood Revitalization & Development Plan.

Within Lowell's neighborhoods, the LHB has established an active historic home marker and brochure program. Other efforts of the LHB have included survey and identification of historic resources and National Register listings as well as technical assistance and outreach to homeowners regarding preservation. Through partnerships with neighborhood groups and various state grant sources, the City has successfully preserved several historic landscapes including Tyler Park and Rogers Fort Hill Park.

For all of its efforts, the City of Lowell was recognized by the National Trust for Historic Preservation with one of its distinguished National Preservation Honor Awards in 2002 as well as one of America's initial Dozen Distinctive Destinations in 2000. In 2004, Lowell was designated a Preserve America community by the White House and Advisory Council on Historic Preservation.

## **1 Historic Resources**

The City's numerous historic districts contain a critical mass of structures from the nineteenth century when Lowell was America's textile capital. Lowell has a total of 13 districts listed on the National Register of Historic Places and 22 individually listed



Lowell National Historical Park

*Photo – DPD*

National Register properties scattered throughout the Downtown and neighborhoods (see below). Lowell has the fifth highest number of properties included on the state's inventory of historic resources in Massachusetts. The Lowell Canal System, which provided the framework that shaped the entire development of Lowell, is listed as a National Historic Landmark and has also been designated a Civil and Mechanical Engineering Landmark.

#### **National Register of Historic Places - Districts**

- Andover Street Historic District\*
- Belvidere Hill Historic District\*
- City Hall Historic District
- Locks and Canals Historic District (also a National Historic Landmark)
- Lowell National Historical Park & Preservation District
- Merrimack-Middle Streets Historic District
- Rogers Fort Hill Park Historic District\*
- South Common Historic District\*
- Tyler Park Historic District\*
- Wamesit Canal-Whipple Mills Historic District
- Wannalancit Street Historic District\*
- Washington Square Historic District\*
- Wilder Street Historic District\*

**\* These districts have also been designated as Local Historic Districts along with the Acre Neighborhood and Downtown Lowell Historic Districts.**

#### **National Register of Historic Places - Individual Listings**

- Allen House (57 Rolfe Street)
- Jerathmell Bowers House (150 Wood Street)
- Jonathan Bowers/Round House (58 Wannalancit Street)
- Brown-Maynard House (84 Tenth Street)
- Butler School (812 Gorham Street)
- Chelmsford Glass Works Long House (139-41 Baldwin Street)
- Colburn School (136 Lawrence Street)
- Flagg-Coburn House (722 East Merrimack Street)
- Fox Building (190 Middlesex Street)
- Holy Trinity Greek Orthodox Church (Lewis Street)
- Howe Building (208 Middlesex Street)
- Hoyt-Shedd Estate (386/396 Andover Street and 569/579 East Merrimack Street)
- Lowell Cemetery (Lawrence Street)
- Middlesex Canal
- Musketaquid Mill (131 Davidson Street)
- Old Lowell Post Office (89 Appleton Street)
- Owl Diner (244 Appleton Street)

- St. Joseph's Convent & School (517 Moody Street)
- St. Patrick's Church (284 Suffolk Street)
- Varnum Building (401 Bridge Street)
- Varnum School (103 Sixth Street)
- Worcester House (658 Andover Street)

## **2 Archeological Resources**

The area known as Lowell was populated well before the Industrial Revolution. This region was popular with Native Americans and early settlers because of its water resources. The two rivers and the Pawtucket Falls proved to be valuable natural resources for hunting, fishing, and transporting goods to and from various markets. While much of this earlier history is overshadowed and forgotten due to the booming Industrial Revolution that occurred centuries later, archeological remains have been found in the region that describe life in Lowell in Pre-Industrial times. The Algonquin-speaking Pennacook Indians came to the Pawtucket Falls regularly to take fish from the Merrimack River. Numerous remains from these fishing and gathering sites have been found along the river.

## **C Population Characteristics**

According to the 2000 US Census, the City of Lowell had 105,167 residents, an increase of 12.5% since 1980 (92,418). Lowell has an ethnically diverse population, consisting of 67% white, 17% Asian, 14% Hispanic and 4% African American. The 2000 Census indicated that 11,313 residents are over the age of 65, 32,013 residents are under the age of 19 (30%) and 7,696 are under the age of 5 (7%). This Open Space Plan aims to plan recreational opportunities for all ethnic and age groups, and physical abilities, being especially sensitive to the needs of seniors, children and the disabled.

The median household income in Lowell in 2000 was \$39,192. There were 3,299 families (13.6%) that were below the poverty line. In May 2001, Lowell's labor pool consisted of 51,496 people. Of these, 2,691 were unemployed, giving Lowell an unemployment rate of 5.2%. This unemployment rate was a significant increase from December of 2000 when the rate was 2.4%.

## **D Growth and Development Patterns**

### **1 Patterns and Trends**

Lowell witnessed its greatest population growth from 1890 to 1900. During this period, the textile mills began to prosper and new commercial and industrial enterprises appeared in the City, creating an increased demand for labor. In 1875, Lowell experienced its first influx of immigrants in response to new employment opportunities. Lowell's population increased 60% from 59,475 in 1880 to 94,969 in 1900. By the early 1900s, industrial production in Lowell had reached its peak. Lowell's population grew steadily as immigrants gradually





replaced the early “mill girls” as the major source of labor. By 1920, Lowell’s population had reached a high of 112,759.

The movement of the textile industry to the south and the resulting depression led to Lowell’s eventual economic collapse. Over the next decade, Lowell experienced its first significant loss in population, decreasing to 100,234 persons in 1930. The City’s population remained stable throughout the Great Depression of the 1930s. Following the Depression and World War II, the population began a steady decline as residents began to move into the neighborhoods. Lowell’s population decreased 10 percent from 101,389 in 1940 to 92,107 in 1960.

The present land use pattern of Lowell was greatly affected by the roadways, which existed prior to early industrial development. The City’s location between Concord, New Hampshire and Boston made Lowell an important link in regional transportation long before the automobile and railroad. Its location at the terminus of two important waterway connections also spearheaded the development of this city. When Kirk Boott, the city’s original town planner, arrived to execute his plan for Lowell, he preserved the original transportation network of farm and coach roads to serve as the city’s major thoroughfares. Today, these same roadways, with only minor surface improvements, are the principal arteries of Lowell’s circulation system. Due to congestion, these transportation arteries have taken development from the central business district and moved it to the surrounding suburbs. Today, little open space remains in this well-built environment. The largest blocks of undeveloped open space remain along the rivers and near the Lowell-Dracut-Tyngsboro State Forest.

Since there are few large open parcels still available, large-scale development in Lowell is predicted to be limited, except in the City’s Pawtucketville neighborhood where some large tracts of undeveloped parcels still exist. Pockets of infill development are occurring throughout Lowell as developers either destroy existing buildings to make room for new projects, or build in areas between present structures where available land exists. However, the new zoning ordinance that was adopted in December of 2004 helps to limit the type of inappropriate infill development that was more common before its adoption.

In the past, Lowell was plagued with dilapidated and abandoned buildings throughout the older and poorer sections of the City. However, in recent years, much public investment followed by a renewed interest from private investors have brought new life into these neighborhoods. The Acre and Downtown Lowell are two sections of the City that have seen and are still undergoing a lot of new construction and rehabilitation of old buildings. Since 2000, over 1000 market-rate residential units have been completed, or are now in the process of development in Downtown Lowell. In the Acre neighborhood, more than 260 units have been created or rehabilitated, and nearly 20% of that number is affordable housing.

Real estate investment has been beneficial for the city economically; however, the lack of undeveloped land in Lowell makes land acquisitions for the public open space inventory



more difficult because the City must compete with private developers in the purchasing process. An area of hope for Lowell is the large number of tax delinquent properties that the City could use for open space. Outside of these parcels, the City must become more creative in its methods of acquiring and securing open space and recreation parcels as development continues to increase rapidly in Lowell.

## **2 Infrastructure**

### **a Transportation Systems**

The Lowell community is well served by a clean, modern and efficient public transportation system. This system includes local and regional bus routes, passenger commuter trains, a modern multi-modal transportation facility at the Gallagher Terminal, as well as regional highways, bridges and pedestrian walkways.

Commuter trains at the Gallagher Terminal provide convenient 40-minute travel service between Lowell and Boston's North Station with 21 trips per day. These trains also provide direct access to North Billerica, Wilmington, Woburn, Winchester, and Medford before arriving in Boston. A 12-minute shuttle connects the Gallagher Transportation Terminal with Downtown Lowell. In addition, 16 bus lines serve the City and the surrounding suburban communities. For those who do not have direct access to the Lowell Regional Transit Authority (LRTA) bus routes can connect to the commuter rail by taking advantage of the low cost parking garage at the Gallagher Terminal. The Gallagher Terminal is also within a short walking distance from the Downtown; however the route is currently not pedestrian-friendly. The City is working on a solution that will make walking to and from the station a more pleasant experience.

The City of Lowell is fortunate to be served by an excellent regional highway system that provides direct access to the Boston metropolitan area as well as key points to the west and north. Lowell is located at the heart of the Merrimack Valley just 30 miles northwest of Boston. To the northeast are Portsmouth, NH (48 mi.) and Portland, ME (97 mi.); to the northwest are Manchester, NH (38 mi.), Burlington, VT (212 mi.) and Montreal, Canada (252mi.); and to the south and west are Worcester, MA (38 mi.), Hartford, CT (103 mi.), and New York City (170 mi.). Lowell is located at the hub of the entire New England highway system, at the junction of Interstates 495 and 93 and Route 3. Interstate 95, connecting northern and southern New England and providing access to the entire Boston perimeter, is accessible in minutes from Downtown Lowell via the Lowell Connector. Interstate 90, New England's east/west corridor, is also easily accessible via Interstates 495 and 95.

Lowell has six bridges that carry cars, bikers, and pedestrians across the Merrimack River. These bridges are heavily used by residents and UMass Lowell students who travel between the different neighborhoods within Lowell, as well as pass-through commuters.

This excellent transportation system has translated into more jobs and services as companies have moved into the region to take advantage of the transportation networks,



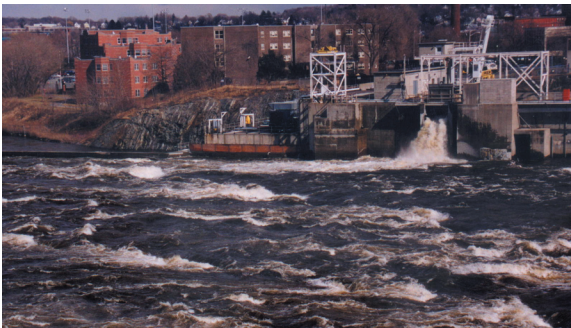
**Gallagher Intermodal Transit Terminal**

*Photo – DPD*



LeLacheur Stadium

*Photo – Higgins & Ross*



Hydroelectric power from the Merrimack River

*Photo – DPD*

excellent labor force, and cheaper rent and land costs than Boston. While much of this development has mainly occurred in surrounding communities, Lowell has felt an impact through increased housing construction and increased through-traffic. The increased population in Lowell and in the region as a whole has resulted in growing pressures on the City's existing services and is placing greater demands on its remaining open space.

The City of Lowell has a number of existing walkways throughout the city. The most popular one is along the Merrimack River in the Pawtucketville section of the City. Hundreds of people enjoy the walk and the view of the river on a daily basis. The City has recently opened another walkway on the Merrimack River that connects the Tsongas Arena and the LeLacheur Baseball Field. The Lowell National Historical Park also has a walkway along the 5.6-mile stretch of canals in the Downtown area. They are currently working with the City to fill in gaps and complete the development of the walkways and parks along the canals. The City is also working with the Lowell Parks and Conservation Trust to develop a greenway on the Concord River that would be a part of the Bay Circuit Trail and connect to the Bruce Freeman Trail.

### **b Water Supply System**

The Lowell Water Department was formed in 1872 and relies solely on the Merrimack River for its supply. Conventional treatment is used with sand, dual and carbon media filtration. Approximately 15mgd are pumped with a maximum capacity of 30mgd. The Lowell Regional Water Utility (LRWU) is responsible for supplying all the residents of Lowell with safe, potable water. The utility also supplies water to Dracut, Tyngsborough, and East Chelmsford on a daily basis. On an as needed basis, water is supplied to Tewksbury, North Chelmsford and Chelmsford Center from a facility on Pawtucket Blvd. The other major user of water from the Merrimack is the Consolidated Power Company, which withdraws water to generate hydroelectric power. The LRWU system includes two underground storage tanks with a capacity of 11 million gallons which are located on Christian Hill in the Centralville section of the city; the Stackpole, Newbridge, Tenth Street booster stations; as well as two free standing storage tanks located on Wedge St (1mg capacity), in the Highlands section of the city and on Fox St. (0.4mg capacity.) located on Christian Hill. There are over 210 miles of water mains consisting mostly of 6-inch cast iron pipes supported by 8,12 and 24-inch cast iron transmission mains. Most of the mains are between 60 and 100 years old. Lowell has 2,200 hydrants and 23,385 residential, business and industrial services. The City has been replacing as quickly as possible the approximately 15% of service pipes that were determined to be made of lead or galvanized iron.

The Merrimack River provides ample water for Lowell's existing and future water supply demands. Significant improvements have been made all along the Merrimack River Utility Basin. Fish were hard to find along the river just twenty years ago, but trout, bass and pan fish can be found in abundant supply today. With the improvement in the water quality, the river is now classified as a "class B river", which means it is safe for fishing, swimming

and boating. However, as development continues in the basin, major efforts are needed to manage existing and potential contamination sources to ensure a clean water supply for Lowell and the surrounding communities who need the City's water.

Much of this clean up effort gained important significance in 1988 when the Environmental Protection Agency (EPA) established the Merrimack River Initiative. This program coordinates clean up efforts between New Hampshire and Massachusetts. Since its inception, millions of dollars have been spent to update municipal sewage treatment facilities and to educate the public on the importance of keeping the water supply clean to prevent further degradation of the Merrimack River. This federal effort has trickled down to the local level where various students from area schools have participated in water quality monitoring programs. Continued clean up of the Merrimack and Concord Rivers will result in expanding recreational opportunities for area residents and stimulating further economic development.

### **c Sewage Service**

The Lowell Regional Wastewater Utility (LRWWU) operates and maintains the city's wastewater treatment plant and interceptor and wastewater collection piping system. The regional system serves the city of Lowell and the towns of Dracut, Chelmsford, Tewksbury, and a portion of Tyngsborough - a total population of more than 180,000 people.

The wastewater treatment plant, located on the former Duck Island, came on line in 1980 and has an average daily design capacity of 32 million gallons per day (mgd). The facility utilizes primary sedimentation and conventional activated sludge secondary treatment to clean the wastewater flow. Treated flow is disinfected with chlorine to remove bacteria as a final process before it is discharged to the Merrimack River. The plant has the capacity to handle a peak flow of 64 mgd, and a peak primary flow of 112 mgd. LRWWU has recently completed a series of capital projects at the facility (more than \$9 million) to rehabilitate the aging infrastructure and to enhance its treatment processes. The improvements will help to ensure that the treated discharge from the plant will meet the federal permit and state river water quality standards.

Lowell's existing sewer collection system consists of approximately 220 miles of sewer lines and 27 miles of drains. The City has a set of large diameter interceptor pipelines along both sides of the Merrimack River that collect the wastewater flow and conveys it to the Duck Island wastewater treatment plant. Approximately eighty percent of the sewers are combined sewers, which carry both drainage (from city streets) and sewerage. During heavy rain storms, the wastewater treatment and collection piping system fill beyond capacity and the overwhelmed system discharges combined wastewater flow directly into the Merrimack and Concord Rivers completely bypassing the treatment plant. The wastewater discharges, known as combined sewer overflows (or CSOs) may occur at nine separate points in Lowell's collection system. The CSO discharges to the Merrimack and Concord Rivers can reduce the quality of river water and impact the recreational uses of the rivers.



Older urban neighborhoods

*Photo – DPD*

CSOs are not unique to the City of Lowell as they also exist in cities of Nashua and Manchester, NH, and downstream in the cities of Lawrence and Haverhill, where the Merrimack River is used as a public drinking water supply. All five communities are under orders from the federal Environmental Protection Agency to develop Long-Term CSO Control Plans (LTCP) to fix the collection systems and reduce overflows from the combined sewer systems. Over the last several years, the City of Lowell and the LRWWU has worked directly with the state and federal regulatory agencies to develop its LTCP and evaluate alternatives to correct the CSO problems. LRWWU has initiated an eight-year, \$65 million capital improvements program to help reduce CSO discharges from the city's system. These improvements include automated and computerized controls at each of the CSO diversion structures to minimize the discharge of flow and maximize the use of existing pipeline storage. In addition, the City has initiated a \$50 million program to separate portions of the combined sewer system (by installing new drains or sewers), which will also help to reduce street flooding and sewer backups into basements of buildings. The Gallaher Terminal is also within a short walking distance from the Downtown; however the route is currently not pedestrian-friendly. The City is working on a solution that will make walking to and from the station a more pleasant experience.

The City has also spearheaded a regional approach to pollution planning along the Merrimack River. In 2001, representatives from the five communities formed the Merrimack River Coalition to begin a collective effort, in cooperation with the United States Army Corps of Engineers, to evaluate and address point and non-point pollutant sources along the Merrimack River. The results of the study will help state and federal regulatory agencies develop a balanced program to deal with pollutant discharges to the river.

### **3 Long-Term Development Patterns**

#### **a Land Use Controls**

Lowell is a diverse community of urban, traditional, and suburban neighborhoods. To control development, Lowell relies on zoning regulations, subdivision control laws, and the site plan review process. In December of 2004, the Lowell City Council adopted a new zoning ordinance and map. These efforts came after the completion of the City's new Comprehensive Master Plan in 2003, which was the guiding document behind the changes made to the City's zoning. The revision of the ordinance includes a number of new rules and regulations aimed at promoting and protecting neighborhood character in accordance to the Master Plan. The new map rezones the entire City using a new set of zoning districts that are described in the new zoning code. The changes place greater restrictions on the design and density of multi-family housing and provide greater provisions for parking and open space. Given the lack of available land for development, provisions such as these will help to maintain open space for residents. Lowell is also working on updating its subdivision regulations, which were last amended in 1983.





CITY OF  
**LOWELL**  
MASSACHUSETTS  
**ZONING MAP**

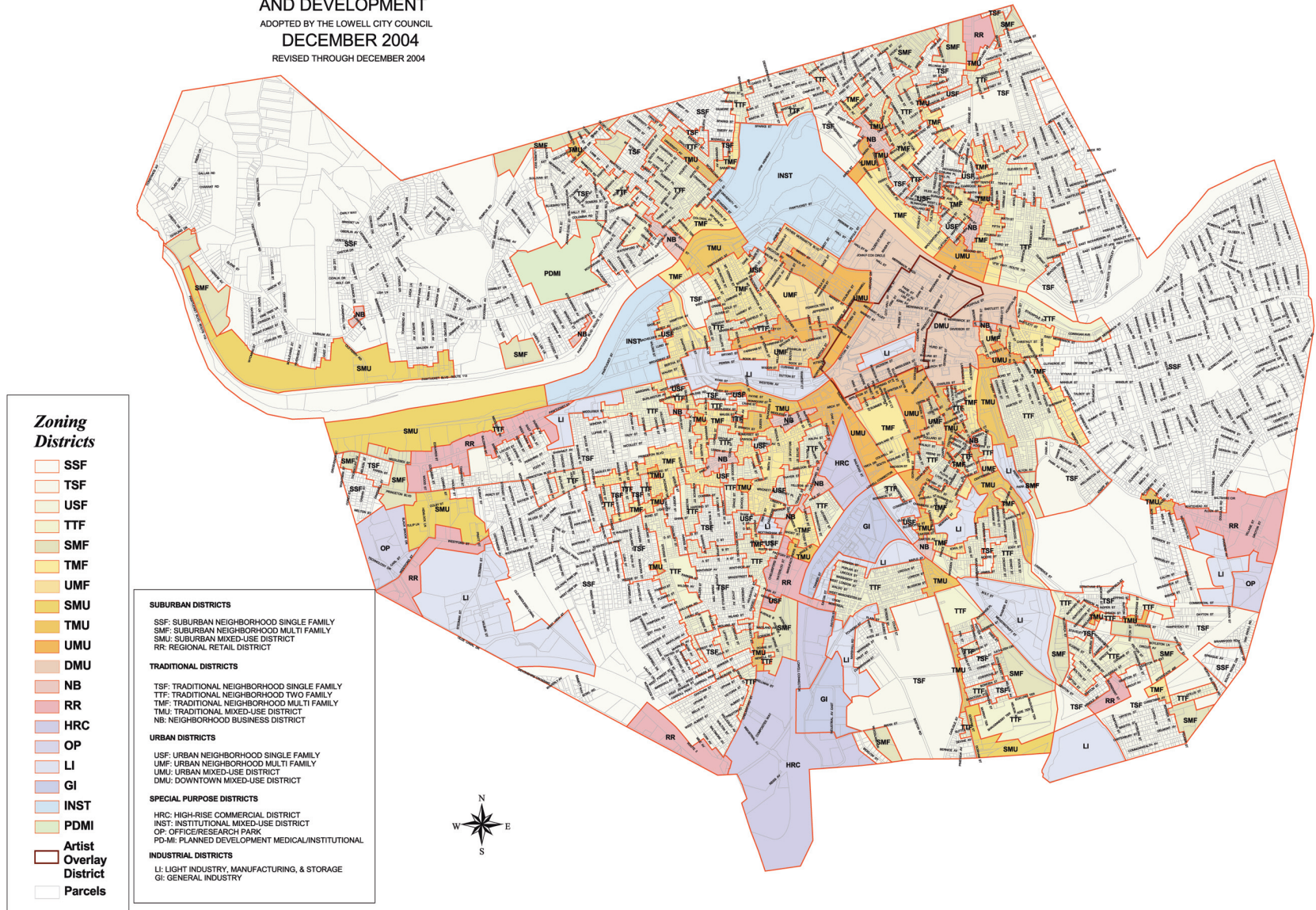
DIVISION OF PLANNING  
AND DEVELOPMENT  
ADOPTED BY THE LOWELL CITY COUNCIL  
DECEMBER 2004  
REVISED THROUGH DECEMBER 2004

2000 0 2000 4000 Feet



Division of Planning & Development

<http://web.ci.lowell.ma.us/>



The City employs a site plan review ordinance to review all development projects of a certain size. This ensures that projects of significance be reviewed by all departments so that concerns can be addressed in a central location and incorporated into Planning Board recommendations. The site plan review ordinance requires that the Division of Planning and Development, Engineering Department, Board of Health, Conservation Commission, Fire Department and Water Department review all projects that involve construction of more than 10,000 square feet or exceed three residential dwelling units. This cooperative agreement ensures that all major projects receive the scrutiny necessary to prevent potentially harmful or hazardous projects. Furthermore, the new zoning ordinance requires more multi-family projects to undergo a special permit review before the Lowell Planning Board than previously. In addition to land use controls, the city relies upon FEMA regulations regarding development in flood prone areas particularly around the Concord River and several other tributaries. The overlay flood plain district puts proposed projects within floodplain boundaries (delineated as Zones A and V in Flood Insurance Rate Maps (FIRM)) under closer scrutiny.

In the last five years, Lowell has seen some of its last remaining large open space parcels developed into single-family subdivisions. More than 25 acres of land was developed due to 3 subdivisions alone. All these projects were in the same section of the city. At the end of 2002, a 20-lot subdivision off of Mary Teresa Terrace was approved by the various boards of the City. Two single-family homes were demolished and 20 single-family homes were constructed in their place on 8 acres. In the summer of 2003, two more large subdivision projects were approved. Manor View Estates off of Varnum Avenue was a 7.2-acre nursery that was converted into 11 single-family homes. Also approved in the same year was the Enchanted Forest subdivision project. This project was built on 17 acres of land, which had been Chapter 61 farmland. The City and the Lowell Parks and Conservation Trust had the right of first refusal on the property; however, neither one could afford to purchase the property. As a result, 17 acres of prime real estate abutting the Lowell-Dracut-Tyngsboro State Forest was sold to a developer who then built 36 homes on the land. The City was able to work with the developer to cluster the homes on 10 acres of the site, and donate the remaining portion of the land to a local land trust, the Friends of the Forest.



## **b Build-Out Analysis**

The following is a summary of the build-out statistics for the City of Lowell.

<b>SUMMARY BUILDOUT STATISTICS<sup>1</sup></b> <b>(New Development and Associated Impacts)</b>	
Additional Developable Land Area (sq. ft.)	53,929,774
Additional Buildable Lots	2,651
Additional Dwelling Units	5,495
Additional Commercial/Industrial Buildable Floor Area (sq. ft.)	23,719,468
Additional Water Demand (gallons/day)	2,677,472
Additional Residential Water Demand	898,512
Additional Commercial/Industrial Water Demand	1,778,960
Additional Municipal Solid Waste (tons/yr.)	10,516
Additional Non-Recyclable Solid Waste (tons)	4,370
Additional Recyclable Solid Waste (tons)	6,146
Additional Residents	11,980
Additional School Children	2,033
Additional Roadway at Build Out (miles)	20

If the City were to be at full build-out, the only open space that will remain will be the following list of public and private lands that are under perpetual protection.

Site Name	Acres
Alumni Field	5.94
Boathouse Site & Greenway	4.28
Edson Cemetery	46.00
Edwards Street Park	6.10
Francis Gate Park	11.42
Hamblet Cemetery	0.54
Hildreth Family Cemetery	2.25
Hunt Cemetery	0.66
Janas Skating Rink	7.95
Lowell Cemetery	82.64
Lowell Heritage State Park	118.00
McDermott Reservoir	17.14
Merrimack River Bike Path	1.01
Old Cemetery	0.53
Old English Cemetery	4.00
Pawtucketville Cemetery	0.22
Polish Cemetery	7.83
Regatta Field	22.29
River Greenway	0.30
Riverfront Park	5.00
School Street Cemetery	1.13
St. Patrick's Cemetery	38.24
St. Peter's Cemetery	23.19
Vandenburg Esplanade	0.62
Westlawn 1 Cemetery	65.37
Westlawn 2 Cemetery	6.30
Woodbine Cemetery	0.76
Wyman Bird Sanctuary	9.08
<b>Total Acres</b>	<b>488.79</b>

Deducting the amount of cemetery land from the total number of acres leaves less than 2 acres of open space per 1000 residents with today's population. According to the Community Preservation Resource CD, this number would decrease even further at build-out if Lowell were to have 112,794 residents. The Cities of Boston and Cambridge have 9.6 and 5.1 acres of open space per 1000 residents respectively. Although these cities may not be the best to compare to, these numbers do show that Lowell is intensely developed, even more so than those cities that are considered to be "more urban". Thus, especially as opportunities arise, creating additional public open space should be a high priority in Lowell for the welfare of its current and future residents.



## SECTION 4

### ENVIRONMENTAL INVENTORY AND ANALYSIS

#### **A Geology, Soils and Topography**

Lowell is a city of hills and valleys with a maximum land relief of 250 feet. The low point of 50 feet above mean sea level (msl) is at Duck Island along the Merrimack River. The higher elevations are concentrated in the eastern portion of the City. Christian Hill rises to an elevation of 300 feet above msl. Other prominent topographic features include Fort Hill, north of the Lowell Cemetery, which rises rapidly over 250 feet above msl and contains a scenic park. To the northeast of the park is a residential area in the neighborhood of Belvidere, which reaches 260 feet above msl. This site once contained a fire suppression reservoir, which was constructed by the proprietors of the locks and canals to protect the mills. In general, the remainder of the City is a plateau surrounded by elevations of 100-250 feet.

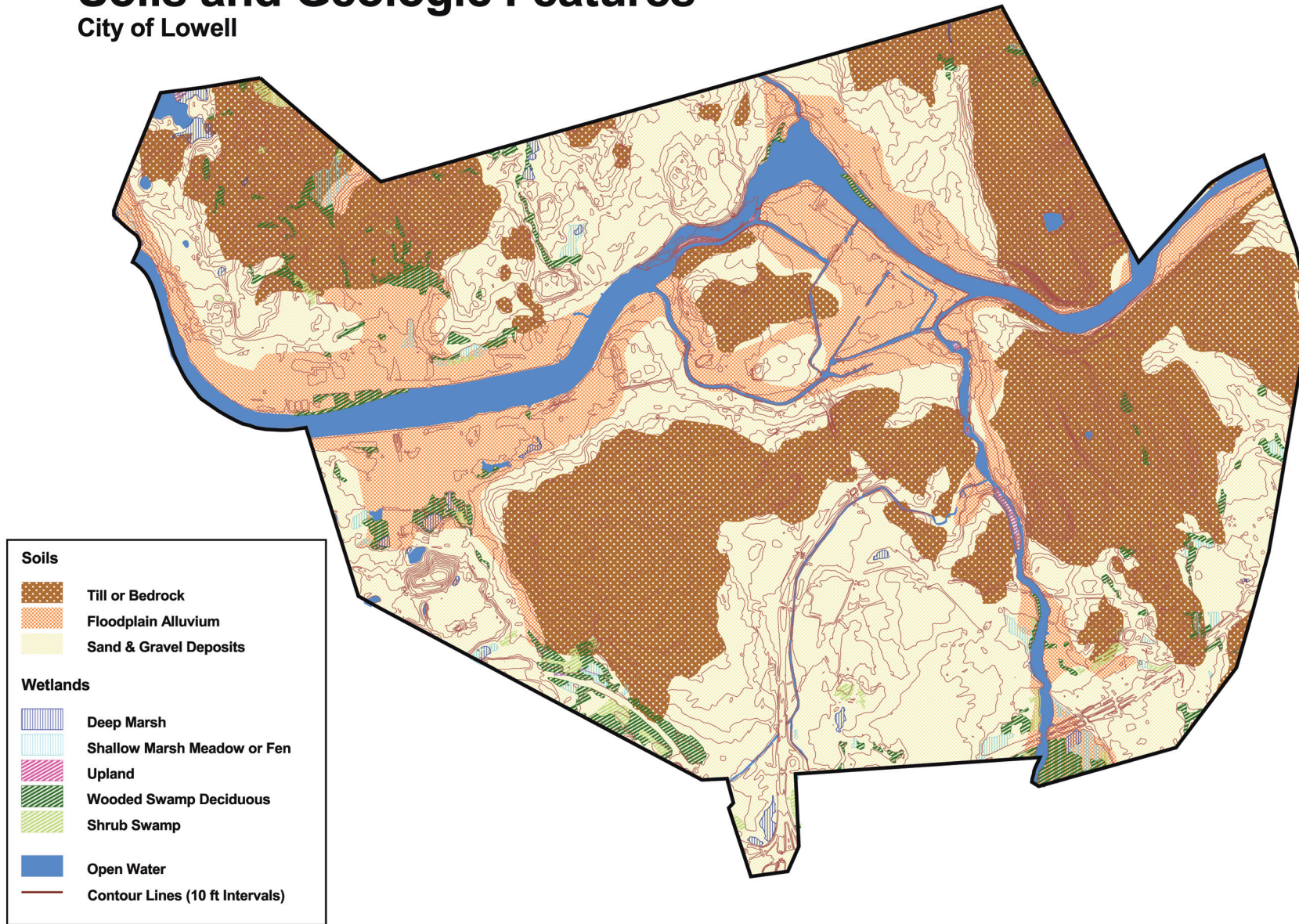
The former landfill located near the Drum Hill Rotary, was previously capped and could be a potential recreation site. This mound of refuse is approximately 200 feet high and offers excellent views of the region as well as downtown Boston. The area could become a ski hill or an elevated picnic and play area. A park would be feasible for this site after all hazardous materials are cleaned up and disposed of properly. This type of conversion, from a landfill to a recreational site, can be modeled after successful projects from other cities.

The Merrimack and Concord Rivers are the major features, which define the landscape of Lowell. The Merrimack River flows easterly through the northern portion of Lowell and drops approximately 60 feet in its eight-mile course through the city. The river drops 30 feet over the three-mile stretch of Pawtucket Falls. The Concord River flows northerly through Billerica and enters the Merrimack near the Bridge Street Bridge northeast of Downtown Lowell. In general, the Concord River's gradient drops very little over most of its length from Billerica to Concord and the floodplain is mostly broad. However, the Concord River drops significantly due to three sets of falls and has a relatively narrow floodplain within the City's borders.

The soils in Lowell are partially composed of deposits consisting of stratified sands and small amounts of silt and gravel found along the watercourses in Lowell. Ice-contact deposits border these deposits and comprise the greatest extent of superficial material. They consist of stratified sand and gravel, with some silt, clay, and a few isolated boulders. The overall stratified material tends to follow the pre-glacial Merrimack River Valley, which extends southeast from the present valley. The ice-contact deposits are over 140 feet thick

# Soils and Geologic Features

City of Lowell





in some places. Higher elevations are almost exclusively composed of glacial till. Till is a conglomeration of unstratified clay, sand, silt, gravel, and boulders that overlie the bedrock found throughout the region.<sup>2</sup>

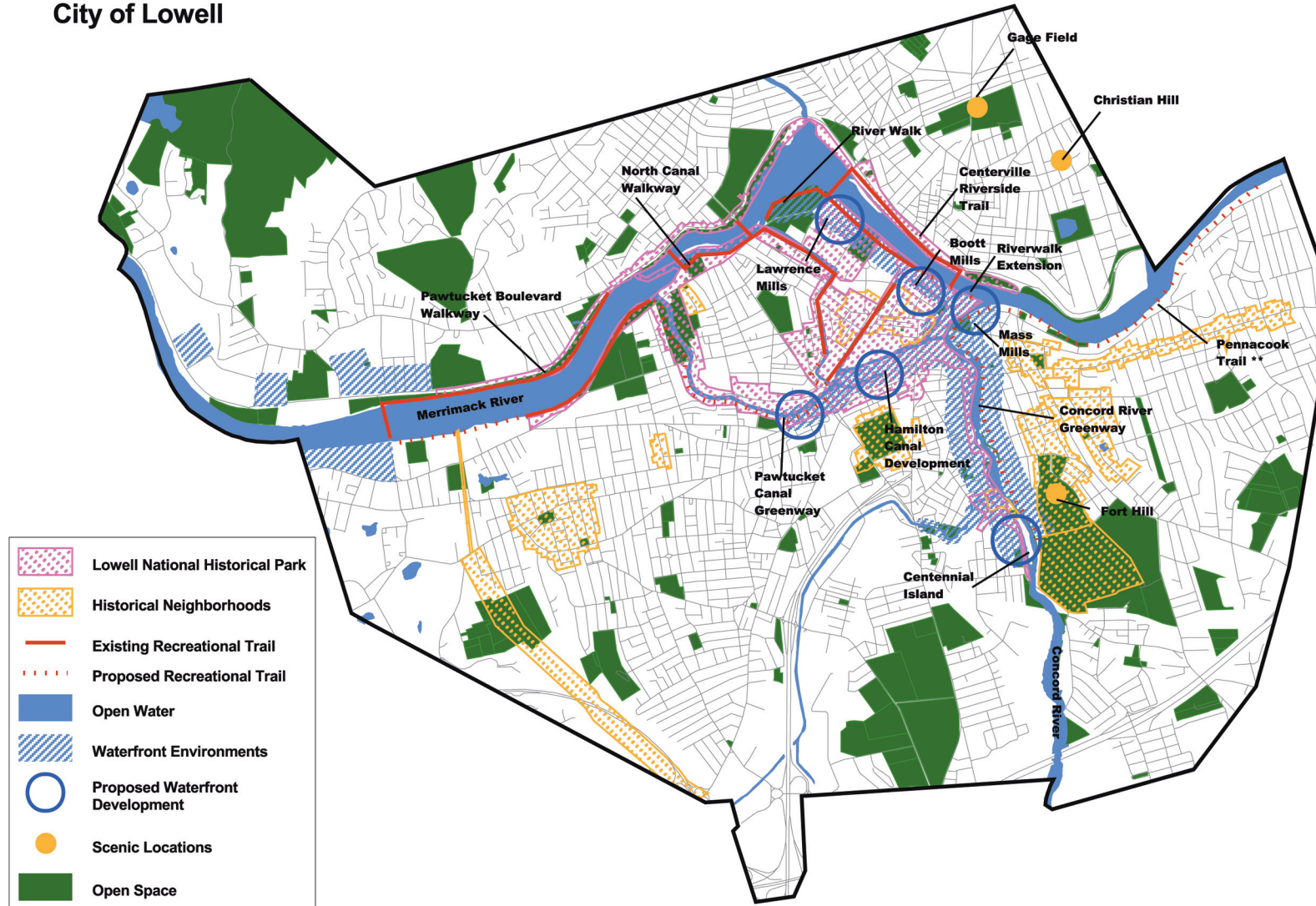
## **B Landscape Character**

The landscape of Lowell is characterized as an urban setting with several geological features that lend to its attractiveness. While much of the city is highly developed, Lowell does offer many attractive vantage points that are appealing to the eye. Many of the hills in Lowell allow for a varied view of the city and contrast nicely with the flat relief around the two rivers. The two jewels of the city, the Merrimack and Concord Rivers, gave the city its founding and led to the birth of the Industrial Revolution. These two rivers served as the backbone for Lowell and the region's economy. Today, they continue to do so and also provide the city with a valuable recreational resource.

Water was and is essential to Lowell's existence. In the past, mill owners built dams, ponds, and canals to control the flow of water to ensure a continuous source of power. However, manmade controls did not guarantee power. Lowell's industrial life was sustained by naturally falling water. At Pawtucket Falls, just above the Merrimack's junction with the Concord, the river drops more than 30 feet in less than one mile. This significant drop in the water level created a continuous surge of power to drive the turbines in the mills. Without the falls, there would have been no textile production and no Lowell as we see it today. In addition to energy, the rivers provide necessary drinking water and a multitude of recreational resources.

# Unique Features

City of Lowell



## **C Water Resources**

### **1 Watersheds**

The City of Lowell is in the Merrimack River Watershed and is also part of the Concord River Watershed. Some of the City's smaller watersheds are around Clay Pit Brook, Beaver Brook, Black Brook, Scarlet Brook, and Humphrey's Brook. The City partners with many groups to protect and maintain its many water resources. It works with the Merrimack River Watershed Council, a group that protects the river and brooks through monitoring and conducting cleanups. The City of Lowell also participates in river cleanups with the Lowell Parks and Conservation Trust, which focuses its programming on the Concord River. In addition, the City has a Local Wetland Ordinance, in addition to the Wetlands Protection Act, to protect the wetlands of the area.

### **2 Surface Water**

The Merrimack River is the largest water body found in Lowell. This river is formed at the confluence of the Pemigewasset and Winnepesaukee Rivers in Franklin, New Hampshire. The river flows southward through New Hampshire to Tyngsborough, Massachusetts, and then turns northeastward when it reaches Lowell. The river empties into the Atlantic Ocean at Newburyport after flowing through Lowell, Lawrence and Haverhill.

The river falls more than 90 feet during its 116-mile flow through Massachusetts. The river drains a land area of 5,010 square miles, of which 1,210 square miles is located in Massachusetts. The water contributed by this vast drainage area is recorded by the United States Geological Survey (USGS) by means of a flow gage just above the Hunts Falls Bridge. The gage location also allows it to account for water received by the Merrimack's largest tributary in Lowell, the Concord River. Average flow at this site is 7,610 cubic feet per second (cfs).

The Merrimack River in Lowell has three access points. There is a private boat ramp at the Bellegarde Boathouse used by a sailing program and the U-Mass Lowell crew team. There is another boat ramp adjacent to the Vandenberg Esplanade. A third boat ramp was just recently constructed in the Fall of 2004 and is located near the Rourke Bridge. During the summers, numerous boats will access the river through this ramp for the purposes of fishing, water-skiing, tubing, or taking a leisurely ride up the river.

The Concord River originates at the confluence of the Sudbury and Assabet Rivers. It flows approximately 16 miles through Concord, Carlisle, Bedford and Billerica before it enters the Merrimack River in Lowell. The river drops 12 feet in the first 15 miles, and then falls 50 feet in the final mile as it goes through Lowell. The drainage area for the Concord River basin is 62 square miles. The Old North Bridge of Revolutionary War fame is situated over this river in Concord. The federally designated Great Meadows National Wildlife Refuge, a vast land area in the towns of Sudbury, Wayland, Lincoln, and Concord, is also along this river. A USGS gauging station located near the confluence of River Meadow Brook and the Concord River records its flow. The average discharge over a 53-year record period was 640 cfs.

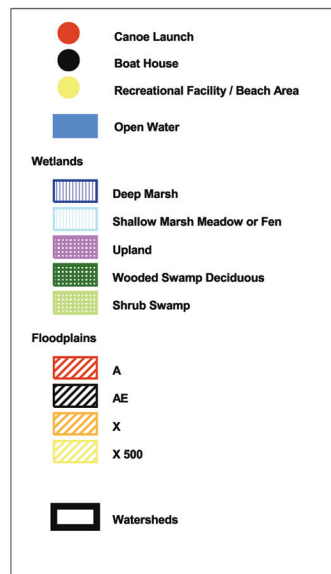


# Water Resources

City of Lowell

Merrimack River Watershed

Concord River Watershed





Canalboat tour

*Photo – Higgins & Ross*

The Concord River is the site of some the best white water rafting in New England. Every spring, the Lowell Parks and Conservation Trust runs white water rafting trips down the Concord River. The season is usually sold out before it even begins. This area has also recently hosted several white water kayaking competitions. The City is moving ahead to capitalize on the interest created by the Concord River to preserve its banks for boat launches and parks. The Concord River Greenway project will enhance access to the river and connect to the Bruce Freeman Trail in Chelmsford as well as the larger Bay Circuit Trail. The City, in a joint effort with the Public Access Board, is also creating a canoe ramp on Billerica Street in Muldoon Park, which will allow boaters to paddle on calmer waters away from the rapids. Local residents have used this site for many years, but the new ramp will make it more accessible to the public. In addition, the history of land use along the Concord River is being investigated through a joint partnership by the Lowell Parks and Conservation Trust and UMass Lowell.

Many recreational activities are dependent upon clean water such as swimming, sailing, fishing, rowing, and canoeing. The Vandenberg Esplanade Boathouse, in the Lowell Heritage State Park, is a major recreational resource along the river. Whitewater rafting, which has recently become a popular springtime activity on the Concord River, is also only possible with clean water. One tour group offers white water rafting trips on the Concord River every Saturday and Sunday from early April to mid or late May, depending upon how long high water levels last. The excursion lasts three hours. For a few weeks in April and May when the water is running high, the Concord River provides the best white water rafting in New England. The Billerica Street canoe launch allows for canoeing on the Concord River. The City's canal system is a major tourist attraction for visitors of the Lowell National Historical Park. With barge tours being a primary component of the experience, water quality is of utmost concern and attention should be focused in this area. The recreational economy of Lowell depends heavily upon clean water.

The second major tributary to the Merrimack River in Lowell is Beaver Brook. The brook originates in New Hampshire and meanders southward through Dracut before flowing into the Merrimack River just east of Pawtucket Falls. Additional tributaries of importance are located in the western part of Lowell. Black Brook begins in a wetland area in North Chelmsford. The brook flows northward, passing through the Middlesex Village area of Lowell before entering the Merrimack River. Clay Pit Brook originates from a vast wetland in the Dracut portion of the Lowell-Dracut-Tyngsboro State Forest, and initially flows southward. After turning eastward, the brook expands into a small pond before continuing as an outlet stream, which flows into the Merrimack River west of Pawtucket Dam. Scarlet Brook is a small tributary that originates in Tyngsborough and flows southward along a portion of the Tyngsborough-Lowell border before entering the river. Flagg Meadow Brook, which originates in the Lowell-Dracut-Tyngsboro State Forest, is also a small tributary of the Merrimack River.

River Meadow Brook is the main tributary to the Concord River in Lowell. It begins in a vast wetland region located south of Chelmsford Center and receives a large amount of



water from another wetland body, Hales Brook, located east of Route 3 and north of Route 129. It flows into the Concord River near Rogers Street.

In addition to the two rivers and several brooks, Lowell is interlaced with man-made waterways, the canals that have been in existence since the Industrial Revolution. All of the canals, the Eastern Canal, Pawtucket Canal, Northern Canal, Western Canal and the Hamilton Canal are fed by the Merrimack River. The Pawtucket Canal was originally constructed as a transportation route around the Pawtucket Dam. The other canals were later constructed as branches of the Pawtucket Canal to feed the additional mill complexes that wanted to use waterpower. Power was generated through the controlled release of water through a series of dams along the canals. Today, Lowell's canals have the capacity to generate 22 megawatts of hydroelectricity, which is enough energy to power 22,000 homes.

Renewed interest in the canal system for recreational purposes has been prompted by the state acquisition of the land along the canal system and by public/private ventures working together to clean and restore these historic transportation networks. The Lowell National Historical Park currently operates tour barges along the canal as part of their programs. Better maintenance and cleaning of the canals will enhance the experience for park visitors and allow for their further enjoyment of the legacy left behind by the Industrial Revolution.

### **3 Aquifer Recharge Areas**

Since the residents of Lowell primarily rely on the Merrimack River for drinking water, the City does not have any specific areas for ground or surface water recharge. While the City does not depend upon ground water supplies, other towns in the region do depend on them. Some water from the wetlands recharge the Stony Brook aquifer and other designated aquifers in the region. Several public wells in neighboring communities rely on recharge areas contained in wetlands found in Lowell. Two public wells in Chelmsford have designated Zone II's that lie within Lowell's borders. The wetland bodies located near Route 3 collect water for underground storage areas. Even though Lowell residents do not rely on these various wetland bodies for water supply, efforts should be made to protect and buffer them from harmful encroachment.

### **4 Flood Hazard Areas**

Flooding often occurs in Lowell during the spring as snow melts and with the coming of heavy rain showers. Due to over-development, many important flood storage areas have been filled and developed. Wetland bodies become valuable water storage areas for impervious surface runoff. When these stream channels cannot accommodate excess discharge, water is carried on the flat valley floors or "floodplain" adjacent to rivers, streams and other surface water bodies.

Development in a watershed changes the watershed's response to precipitation. The most noticeable effect is the significantly higher rate of runoff that results from an increase in

building and parking lots. Whereas natural lands can readily absorb water and transmit it to a water table, impervious surfaces direct the flow of water, channeling it to receiving sites. The problem is that the rate of flow contributes to erosion and the water collects hazardous contaminants along the way.

Flooding in Lowell is a problem in some areas near the Merrimack River. This is especially true along the northern bank near the Rourke Bridge. Lands near the Concord River also suffer from severe flooding. Many areas along Black Brook, near its confluence with the Merrimack River, have experienced flooding and erosion problems on an annual basis. Flooding along Clay Pit Brook and Marshall Brook have also been problems in past years.

## 5 Wetlands

There are many types of wetland environments such as marshes, wet meadows, ponds, bogs, wooded swamps and other water-dominated areas. Wetlands should be preserved because they help to maintain water supplies, purify polluted waters, check the destructive power of flood and storm water, shelter diverse wildlife and provide numerous recreational opportunities.

Most wetlands found in our urbanized area provide significant benefits by preventing or reducing pollution in a variety of ways. Many of these ways are related to the great absorptive capacity of the wetlands. Water is stored and retained in wetland basins and is released gradually into our groundwater. The vegetation in wetlands frequently act to filter and trap sediments and heavy metals. By trapping these nutrients and minerals, wetlands purify the water and provide healthier environments for fish and plant life. Wetland plants that thrive in these wet environments further enhance the environment by reducing biological oxygen demand levels, and lowering nitrate and phosphate levels. A number of factors influence the degree to which wetlands function in pollution prevention or reduction. These factors include wetland type, vegetative density, size, and gradient.

The water storage capability of wetlands is important for their role in flood control and storm damage prevention. Wetlands can reduce the force and speed of floodwaters, which could cause serious property damage. In this way, wetlands provide a secondary function by reducing the intensity of floodwaters, thereby reducing erosion. This factor is particularly important in highly urbanized areas such as Lowell where impervious surfaces intensify water runoff.

Not only do wetlands provide important benefits for the urbanized environment, they are also necessary breeding and hunting grounds for plant and animal life. Many bird and mammals rely almost solely on wetlands and adjacent vegetative habitats for food, shelter, and reproductive purposes. The importance of wildlife habitats provided by the wetlands has recently become a greater issue for determining wetland value. The actual value of a wetland as a wildlife habitat depends on its size, vegetation composition and structure, and hydrologic relationship. In addition, these habitats provide important recreational opportunities for hunters, fishers, bird watchers and boaters as well as



Black Brook wetlands

*Photo – DPD*

hikers, photographers and environmental educators. Without the wetlands, many of our recreational opportunities would quickly disappear if we do not provide better protection for these valuable open spaces.

In Lowell, wetlands are generally shrub swamps or areas forested with hard wood species. Most of the larger wetland areas that are approximately 10 to 25 acres are present in the Lowell-Dracut-Tyngsboro State Forest as well as along the old Middlesex Canal, Black Brook and portions of the Merrimack and Concord Rivers' floodplains. Other minor wetlands can be found near Cross Point Towers, Wood Street and Westford Street, several locations along I-495 and near the Cawley Stadium. There are several other smaller wetland locations dispersed throughout the city.

## **D Vegetation**

### **1 General Inventory**

Hardwood species are dominant in the Lowell-Dracut-Tyngsboro State Forest. The white pine predominates in sandy soils while hardwood and hemlock species are found in looms and fine sandy looms. Dominant hardwood species include red and sugar maple; red, white, black and scarlet oak; white, black and gray birch; white ash; beech; butternut; sweet pignut and shagbark hickory; and American elm.

On upland sites with rich, moist soils, white pine, maple, oak, hickory, birch, beech, and ash are common. Dry, well-drained sandy soils are predominated by pitch pine, white pine, gray birch, and white and scrub oak. Understory vegetation of the hardwood forest include tree saplings and shrubs such as blueberry, mountain and sheep laurel, maple leaf viburnum, and smooth arrow-wood. Areas of open fields not under cultivation include grasses such as foxtail, broom bear, redtop, fescue, orchard, Kentucky blues, and timothy. Herbaceous and woody field species include red field clover, wild carrot, meadowsweet, yarrow, goldenrod, hairy vetch, lady's sorrel, asters, cinquefoil, sweet fern, pigweed, dandelion, and ragweed.

Marshes, unlike swamps, do not have trees or shrubs and are characterized by grasses and sedges such as cattail, pickerel weed, arrowhead, spike rush, bulrush, umbrella sedge, reed, reed canary grass, smartweeds, swamp milkweed, and water plantain. Swamps are dominated by wetland trees (red maple, black gum, black willow, and black oak) and shrubs (speckled alder, pussy willow, skunk cabbage, sweet pepperbush, water hemlock, elderberry, jewelweed, silky dogwood, violets, and water pennywort). Floodplains, which may include swamps, marshes, and water-tolerant forests, are adapted for their periodic wet existence. Floodplain trees such as black willow, cottonwood, and silver maple are particularly adapted to withstand flooding. Marshes, swamps, and floodplains are terrestrial ecosystems that are particularly sensitive to environmental changes and thus may be severely impacted. Marshes and swamps are land areas, which are continually inundated with water, or which continually have groundwater levels at the ground surface.

In 2002, the Lowell Parks and Conservation Trust and the Mass Audubon Ecological Extension Service conducted an ecological inventory of the lands adjacent to the Concord River, and detailed information regarding vegetation along the Concord may be found in this report.

## **2 Forest Land**

The urbanization of Lowell over the past century has resulted in a significant loss of vegetation. According to the 1985 Massachusetts Land Cover Map, the western portion of the city contains well-forested areas. Hardwood species are dominant in and surrounding the Lowell-Dracut-Tyngsboro State Forest. The State Forest is over 1,000 acres in area, of which 259 acres is located in the city. Mixed hardwoods and softwoods exist south of this area in the region of two additional state forestlands. In the western portion of the city, there are relatively dense, forested areas along the banks of the Merrimack River.

## **3 Agricultural Land**

There is one parcel in the city that is protected under Chapter 61A regulations. This Massachusetts law allows a landowner that farms his land to pay a lower property tax. The tax is based on the land's present use as opposed to its often more valuable potential use such as residential or commercial. A landowner must have at least 5 acres of contiguous property in order to qualify. The Chapter 61A landowner in the City uses his property for the production and sale of Christmas trees. Other parcels in the city were once protected under Chapter 61A, but have since been withdrawn to allow for residential development. It is unlikely that any other parcels will be designated as agriculture. Preserving land for agriculture is difficult in Lowell as the alternative is too profitable and the city lacks adequate land use measures to protect such agricultural activity.

## **4 Rare, Threatened and Endangered Species**

The Massachusetts Natural Heritage and Endangered Species Program (MNHESP), which maintains records of the State's rare and most vulnerable natural features, has records of six historical rare plant species that existed in Lowell. These species, shore sedge (*Carex lenticularis*), Indian paintbrush (*Castilleja coccinea*), arethusa (*Arethusa bulbosa*), Melscheimer's sack bearer (*Cicinnus milsheimeri*), tufted hairgrass (*Deschampsia cespitosa* SSP *glauca*), and hardy wild rice (*Elymus villosus*) were last seen over 100 years ago. The arethusa, shore sedge, Melscheimer's sack bearer, and hardy wild rice are all on the threatened list, while tufted hairgrass is listed as endangered, and the Indian paintbrush is listed as historical. The MNHESP has no record of any rare plant species currently existing in Lowell. The MNHESP recommends that further study be completed in Lowell to identify more occurrences of rare plants or animals.

Some sections of Lowell-Dracut-Tyngsboro State Forest should be noted for their unique plant environments and warrant further research. The Natural Heritage Program has identified a priority habitat that may possibly contain state listed rare species.

Further research work is needed to determine what species actually exist in this unique environment. Efforts should be undertaken to identify any rare plant or animal species residing in this section of the State Forest.

## **E Fisheries and Wildlife**

### **1 General Inventory**

Despite Lowell's limited amount of open space, the landscape, particularly along the Concord and Merrimack Rivers, provide homes to a varied wildlife population. Belted kingfishers, black-crowned night herons, great blue heron, and green herons are common bird species that can be sighted during summer months. Until recently, a rookery of black-crowned herons was located on the Great Bunt of the Merrimack River, a reach at the foot of Pawtucket Falls where the river makes a wide bend and is joined by Beaver Brook. Construction of a sewer interceptor in the area and vandalism of the birds' nesting trees have caused the herons to leave the site. The Bald Eagle has also been sighted in the city, especially during the fall migration period. As they become abundant in the river's estuary, nesting sites should be built along the Merrimack River. Discarded utility poles provide excellent nesting platforms for birds of prey and provide a way to recycle infrastructure components.

The State Forest contains a diverse habitat that supports squirrels, cottontail rabbits, red fox, various songbirds and fishers that have traditionally been absent but are now returning to the woodland areas of Lowell. Tributaries to the Merrimack River have been homes to beavers for a number of years as well as several types of waterfowl.

In 2002, the Lowell Parks and Conservation Trust and the Mass Audubon Ecological Extension Service conducted an ecological inventory of the lands adjacent to the Concord River, and detailed information regarding wildlife along the Concord may be found in this report.

### **2 Vernal Pools**

There is one vernal pool that has recently been verified in the City of Lowell. It is off Elene Street in the Pawtucketville section of the city. The Friends of the Forest, a local land trust, will be reviewing the Lowell-Dracut-Tyngsboro State Forest to see if there are additional vernal pools in Lowell that should be certified.

### **3 Corridors**

Vegetative corridors are critical for habitat survival. Strips of undeveloped land provide essential links for animals and birds to move from one feeding spot to another. When development cuts off these links, wildlife ultimately face extinction as their habitats dwindle. Corridors can also provide excellent spots for Lowell residents to view nature scenes in an urbanized setting.



Maintaining and protecting the vegetative corridor along the Merrimack River can provide wildlife with access to broader undeveloped tracts located outside the region. A recommendation of this Plan is to recognize and maintain the wildlife corridor between the Lowell-Dracut-Tyngsboro State Forest, running along Clay Pit Brook and Flaggy Meadow Brook, and the Merrimack River. Parcels along this corridor should be protected wherever possible. The lands that make The Concord River, with thick vegetation on both banks of the river, is another corridor that should be maintained and protected. When completed, the Concord River Greenway will connect some of Lowell's largest open spaces, such as Shedd Park, Rogers Fort Hill Park, and several large cemeteries, providing another vegetative corridor for animals and birds in the City. Corridors are also important in the waterways for fish. A salmon restoration project completed by the State has provided a fish ladder at the Pawtucket Dam on the Merrimack River and a fish elevation at the hydroelectric station. This lift and ladder system allows fish to continue their journey up river to their spawning grounds in New Hampshire.

#### 4 Rare, Threatened, and Endangered Species

The Natural Heritage and Endangered Species Program have determined that the following rare species exist in Lowell.

Taxonomic Group	Scientific Group	Common Name	State Rank
Butterfly/Moth	<i>Cicinnus melsheimeri</i>	Melsheimer's Sack Bearer	Threatened
Vascular Plant	<i>Carex lenticularis</i>	Shore Sedge	Threatened
Vascular Plant	<i>Deschampsia cespitosa</i> SSP <i>glauca</i>	Tufted hairgrass	Endangered
Vascular Plant	<i>Elymus villosus</i>	Hairy Wild Rye	Endangered
Vascular Plant	<i>Liatris borealis</i>	New England Blazing Star	Special Concern

In May of 2000, a team of people from the U.S. Fish and Wildlife Service, the Massachusetts Riverways Program, the Lowell Parks and Conservation Trust and volunteers released 7,000 adult River Herring or alewife to the Concord River. Like salmon, alewife are anadromous fish: they breed in fresh water rivers and after a period of juvenile growth, the young fish swim downriver to spend their adult life in the ocean. After about 3 to 5 years in the ocean, mature alewife return to the river in which they were born. The native population of alewife in the Concord River became extinct in the 1800s when the dams that were constructed across the Concord and Merrimack Rivers prevented mature fish from returning "home" to spawn. The Alewife Restoration Program to the Concord River

has the potential of being one of the most successful and dramatic fish restoration projects in New England. The various organizations will continue to monitor the program to ensure the return of alewife to the river.

## **F Scenic Resources and Unique Environments**

### **1 Scenic Landscapes**

The City's most distinctive features are the Merrimack and Concord Rivers. The wide Merrimack River offers a dramatic view and gives the City a general feeling of openness. The Merrimack River is classified as a Massachusetts Scenic River. The Pawtucket Falls, where the Merrimack plunges over the dam, is also a location of special interest. The more intimate Concord River, though heavily developed over much of its length in Lowell, provides many locations of natural beauty and historic interest.

Other scenic landscapes include the annual foliage and two large marshes located in the Lowell-Dracut-Tyngsboro State Forest that span approximately 30 acres. The Lowell Cemetery, designed after Mt. Auburn Cemetery in Watertown, is known for its distinctive plantings and tombstones. Lowell's topography also affords many scenic overlooks of the City. The summit of Fort Hill, at over 250 feet, offers beautiful views of the Concord River and Downtown Lowell. Gage Field is also a good location for viewing over the city. The Belvidere neighborhood and the Merrimack River can be seen from the Christian Hill reservoir. Again, all these views are enhanced during the Fall with the color changing of the leaves.

### **2 Major Characteristics or Unusual Geologic Features**

An important area for recreational use and a unique environment for the region are the white water sections of the Concord River near its intersection with the Merrimack River. In this area, the water level drops almost 50 feet providing excellent conditions for rafting and canoeing. Several competitions have already been hosted as a result. To further enhance this section and the entire stretch of the river through Lowell, the Lowell Parks and Conservation Trust, with the City of Lowell, is working to identify parcel ownership, acquire easement grants, and develop conceptual plans. Residents' perceptions regarding the positive aspects of the river are limited as access problems prevent close interaction with the river. Lowell could capitalize on the attractiveness of the river and gain regional and national recognition for its excellent white water found on the Concord River by protecting the banks of the rivers, developing access points, and hosting major competitions for canoeists and rafters.

### **3 Cultural and Historic Areas**

Extensive public programming, interpretive and educational programs, waysides, and public art add to the vibrancy of the city and reinforce Lowell's history and culture. Wayside



Overlooking downtown Lowell and the Merrimack River

*Photo – Higgins & Ross*

exhibits and public art help to weave together the significant areas, vistas, and structures along the canalways and throughout the Downtown Lowell Historic District. Cultural events such as the Lowell Folk Festival, Lowell Summer Music Series, and Winterfest help to encourage the community to celebrate its rich heritage while participating both as actors and audience in the midst of Lowell's historic buildings and sites.

Many historic and cultural resources are located along the rivers and canal system in Downtown Lowell where industry once harnessed the power of the Merrimack and Concord Rivers. Canal boat tours conducted by the Lowell National Historical Park enable visitors to experience the technological marvels of the 19<sup>th</sup> century.

As mentioned earlier, Lowell also has numerous sections in the city that are listed on the National Register of Historic Places. These districts contain the tangible reminders of Lowell's history in the form of 19<sup>th</sup> century residences, industrial structures, parks and landscapes, cemeteries, and civic and community buildings.

#### **4 Areas of Critical Environmental Concern**

There are no designated Areas of Critical Environmental Concern (ACEC) in Lowell. The city has examined the necessary steps to apply for an ACEC designation but felt that sufficient resources were not available to warrant this type of protection. However, this does not mean that certain areas around the city are not worthy of further protection. The city needs to be aware of the value provided by the rivers and streams of Lowell to residents, plant life, wildlife and industry. The Merrimack and Concord Rivers, the several brooks that feed into these locations are all very important to Lowell and should be protected through various methods.

### **G Environmental Challenges**

#### **1 Hazardous Waste Sites**

It is a challenge to create new recreational spaces in Lowell due to the fact that many of the vacant lots in the City are Brownfield sites, which have real or perceived contamination. Currently in Lowell there are several sites throughout the city that are proceeding with an active cleanup of hazardous waste. There are over a hundred sites in the city that have a permanent solution in place without any activity use limitations. There are more than a dozen that have a permanent solution but do have activity use limitations which prevent recreation as a use without further remediation. There are also several hazardous waste generator, storage and/or disposal facilities known to exist along the Merrimack River, which are permitted under the Resource Conservation and Recovery Act (RCRA) program administered by the EPA. These facilities could potentially contaminate the Merrimack River; however, unlike non-permitted facilities, these operate under established performance standards and are monitored by the EPA. The Massachusetts Department of Environmental Protection (DEP) also keeps track of known RCRA sites within the City.



**Boott Mills**

*Photo – Higgins & Ross*

Most of the toxic sites in the City were caused by leaking underground storage tanks. Two sites are being remediated at this time. The remainder will be cleaned over time, as the process is lengthy and costly. The largest known site in Lowell is the Silresim Chemical Corporation site off Tanner Street. The Silresim Chemical Corporation facility is currently on the national priority list for Superfund sites. The Superfund program is administered by the federal government and is responsible for the removal and remediation of sites contaminated by improper waste disposal. The federal government generally charges the owners, lessors or companies that are responsible for the chemical leaks to pay for cleaning costs. The Work on the Silresim site began in 1994 and it is estimated that it will cost well over \$40 million to fund the clean up efforts, and the plant may be in operation for another 25 years. Many companies have been named in the suit. Thus far, the EPA has identified 223 parties as having been responsible for the hazardous wastes disposed at the facility. All will be required to pay a certain amount for the clean up.

As part of the reuse planning process for Silresim, the City received a planning grant from the EPA that helped devise the Tanner Street Initiative plan. This plan, available at [www.cityoflowell.com/tsi](http://www.cityoflowell.com/tsi), highlights possible short and long term uses for the site. It looks at the district as a whole and suggests a new park at the location of East Pond, just behind the Superfund Site and behind the Maple Street industrial condominiums. This plan is moving forward with implementation; however, East Pond Park will require property acquisition, which currently is not expected to be considered for several years.

## **2 Landfills**

The Lowell Dump was once Lowell's primary solid waste disposal area, but has recently been closed. The dump now stands at 200 feet high and occupies 48 acres. Through a directive by DEP, the landfill has been properly capped and is being monitored to prevent groundwater contamination and air pollution caused from methane. Due to the site's proximity to Beaver Brook, testing is being done to ensure that leachate is not polluting the brook. The dump was capped with 18 inches of clay, a relatively impermeable substance, and a top layer of soil and grass. Ventilation systems were installed to trap and release the methane gases generated by decomposing trash. These gases are harmful and can explode under certain conditions. With the completion of the capping and installation of proper vapor collection systems, the dump has the potential to become a park or other recreation use. This alternate use has been successful in several other locations throughout the State, including Danehy Park in Cambridge.

## **3 Erosion**

Erosion is not a particular problem in Lowell given the lack of steep slopes and exposed land surfaces. There is one area; however, which suffers from erosion because of dam activity near Pawtucket Falls. As a result of the raising and lowering of the water level at the dam, the stream banks below the dam experience erosion as the water rushes by when the water level is changed.

#### **4 Chronic Flooding**

Flooding is a problem along the Concord River during heavy periods of rain. Flooding is also a problem along the northern banks of the Merrimack River near the water treatment plant. Areas of chronic flooding in the City include land around Black Brook and the Trull Brook tributary between Phoenix Avenue and Clark Road. There are several other areas around the City that are subject to chronic flooding. Many are located in the 100-year flood plain along waterways such as Marginal Brook, River Meadow Brook, Beaver Brook, and Clay Pit Brook.

Flooding from these wet areas can cause property damage and is a source of many problems for home and business owners. The City has solved some of the flooding issues in some places and will continue to work with other agencies to address the other areas. Fortunately, many of the areas that are subject to chronic flooding are overseen by the Conservation Commission and are therefore protected from further development. The Conservation Commission reviews all plans for building within a flood plain and uses criteria set up in the Massachusetts Wetlands Protection Act to decide if development will be allowed. Appendix A lists the streets in Lowell that are shown in the FIRM maps to be partially or totally within Special Flood Hazard Areas.

#### **5 Sedimentation**

Sedimentation poses many problems for rivers. It reduces water depth, which then causes the water temperature to rise, and reduces water flow. Sedimentation also harms fish and plant life by clogging waterways. Fortunately, sedimentation and erosion have not been particularly problematic for the City of Lowell since much of the land is developed. The City has not had farm activity in some time and hence, does not have to worry about soil runoff from agricultural operations and its effect on surface waters and water quality.

#### **6 New Development**

An environmental challenge relating to new development that the City of Lowell is facing at this time is the use of brownfield sites. A brownfield site is a site where there is perceived or real contamination. There are a considerable number of these sites throughout the City due to its industrial past. Since much of Lowell is almost built out, brownfield sites will soon be the only areas left for development. Brownfield sites require extensive testing to make sure there is no contamination and expensive cleanup if required.

Although there are safeguards in the form of regulations and oversight that prevent new development in wetlands and other areas that should be protected, there have been instances where projects have proceeded that clearly are harmful to their nearby natural environments. Going forward, it will be a challenge for the City to prevent projects like these from taking place, and to develop a procedure for enforcing rules and regulations.



## **7 Ground and Surface Water Pollution**

Surface water discharges to the Merrimack and its tributaries from both public and private sources contribute to reducing river water quality. According to DEP, there are ten municipal National Pollution Discharge Elimination System (NPDES) outfalls to surface waters in the city. One permitted outfall is for the Lowell wastewater treatment plant. The other nine permitted outfalls are for the CSO discharges.

As discussed previously, Lowell, as with older cities, has a combined sewer and storm water system that becomes overwhelmed during heavy rain storms. Nine-combined sewer overflow (CSO) structures regulate flows to the treatment plant and discharge excess storm flows directly to the Merrimack River or its tributaries. Seven of the overflows discharge directly into the Merrimack River, one into Beaver Brook, and one into the Concord River.

DEP also identifies eight industrial NPDES outfalls discharging into the Merrimack River or a major tributary within the city. Three of the outfalls discharge into the Merrimack River, two into the Pawtucket Canal, two into the Lower Lock Canal and one into the River Meadow Brook.

The City also has a Phase II NPDES General Stormwater Permit for the outfalls in its separated stormwater systems. Under the General Permit program, the City received a permit number to cover all of its stormwater outfalls versus having a unique permit number assigned to each of the outfalls. Based on existing mapping and field inspections, approximately 190 stormwater outfalls were identified that discharge flow to the various water bodies within the City limits. Of these existing outfalls, only three outfalls showed evidence of potential illicit sewer connections to the stormwater system. The City is investigating these discrete stormwater outfalls to identify and eliminate any potential connections. Under the Phase II Stormwater Program, the City is also performing Best Management Practices, such as street sweeping, catch basin cleaning, and public education, to help reduce the water quality impacts of these point source stormwater discharges to the rivers.

Non-point source pollution to surface and ground water supplies caused by land use activities are also a concern. Major categories of non-point source pollution affecting the waters of Lowell include direct urban runoff and land disposal. While it is hard to pinpoint actual locations that contribute to surface water pollution, it is possible to identify general locations throughout Lowell where such sources of pollution could be generated.

Structural controls exist to control urban runoff to water bodies. Non-structural controls rely on actions to control sources of pollution. These include employing conservation techniques, establishing buffer zones from streams, requiring development standards to control erosion and sedimentation during construction, encouraging community activities such as recycling, waste oil collection and redesigning road salting programs. Many of these practices are being implemented in Lowell. The protection of the Concord River with a greenway park will help to reduce pollution impacts by limiting encroaching development.

One source of non-point source pollution is the extensive canal system in Lowell and the multitude of surface parking lots. Many storm drains empty into the canals transporting water to the Merrimack River. In addition, many surface parking lots and other impervious surfaces abut the canal resulting in easy collection sites for storm water runoff. Land use controls along the canals, preservation of the canal system, and greenways along the canals can help to filter out harmful pollutants and protect the water that flows through the canals. Such a program is currently underway by the Lowell Historic and Preservation Commission that aim at preserving and developing an extensive pedestrian walkway system along the canals. This plan will serve many benefits; it will protect the canals from harmful land uses, provide interpretive educational resources for park visitors and preserve an integral part of Lowell's industrial past.



# **SECTION 5**

## **INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST**

This section includes all lands within the City of Lowell with current and potential conservation and recreational value to the residents of Lowell.

### **A Private Parcels**

#### **1 Agricultural Lands**

The City of Lowell does not have a zoning designation for agricultural land or open space. However, there is one parcel of land in the City that is protected under Chapter 61A regulations, a state law that allows a landowner that farms the land to pay a lower property tax. The tax is based on the land's present use (agriculture and/or horticultural) rather than its often more valuable future use such as residential or commercial uses. A landowner must have at least 5 acres of contiguous property in order to qualify. The 61A parcel contains 10 acres and is located on Varnum Avenue in the northwest section of the City. The landowner uses his property for the production and sale of Christmas trees, but the zoning code permits single-family residential construction on that lot. Other parcels in the City were once protected under Chapter 61A but have since given way to residential development. It is unlikely that any other parcels will be used for agriculture in Lowell in the future. Preserving land for agriculture is difficult in Lowell because alternative uses are too profitable, and the Commonwealth of Massachusetts does not allow for adequate land use measures to protect agricultural land from residential development.

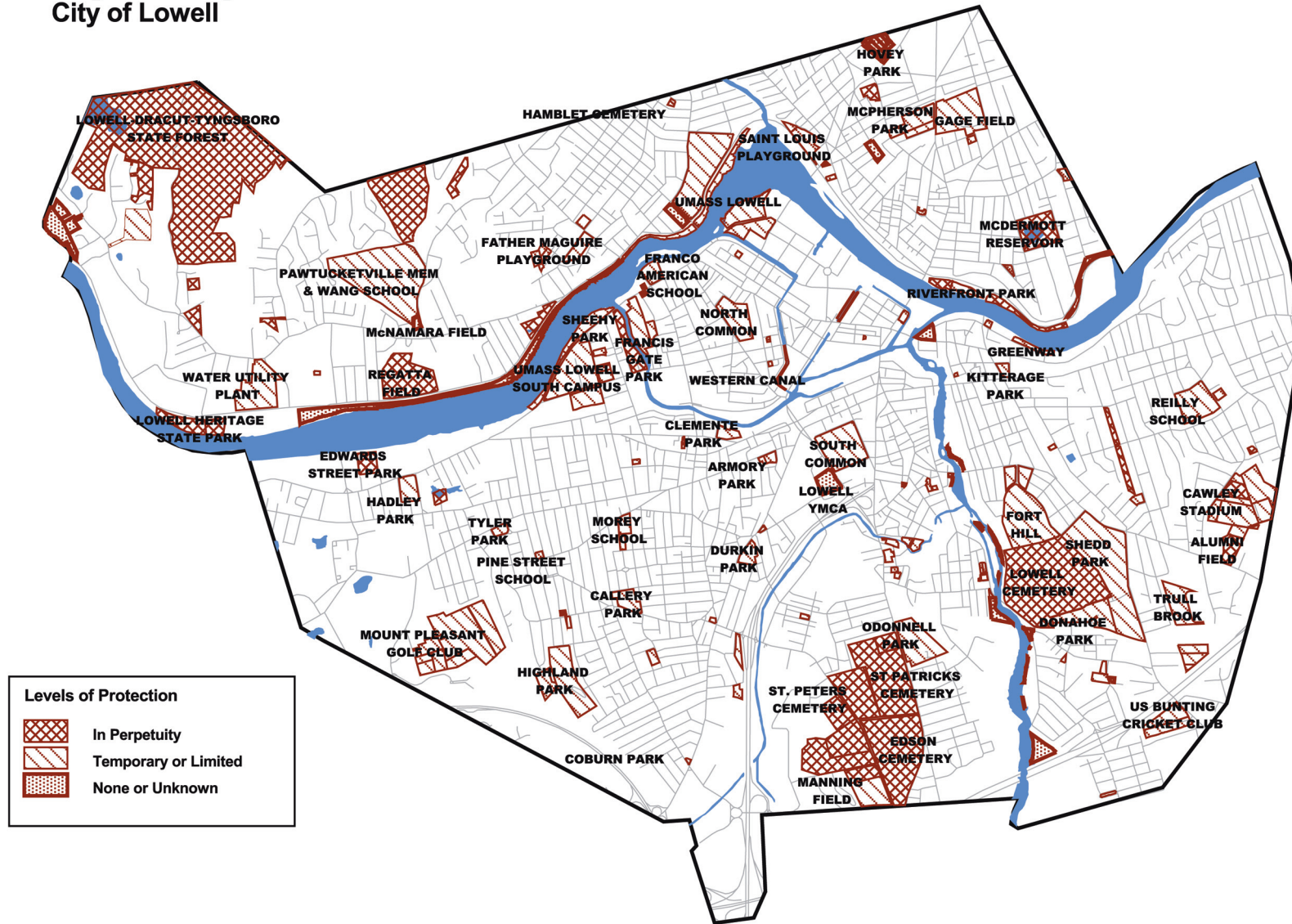
#### **2 Forest Lands**

There are no forest land properties within the City of Lowell that qualify for Chapter 61 protection. Property owners who own more than 10 acres of contiguous land used for forest production can petition the State for Chapter 61 designation. The forest land designation has similar requirements as Chapter 61A.

The only significant block of woodland found in the City is in the Lowell-Dracut-Tyngsboro state forest. There are limited blocks of trees covering the state forest and along the Merrimack River located on private parcels. However, none of these properties are protected under Chapter 61 regulations. Much of the larger blocks of forest land were cleared over a century ago to allow for agricultural development.

# Open Space: Levels of Protection

City of Lowell





### **3 Less-than-Fee Interests**

There are no parcels of land found in the City of Lowell that are protected under these various development restrictions. These easements are typically granted by a landowner for the benefit of the public good to provide access to a valuable recreational resource. They generally state that the landowner will not alter the land in a way that negatively impacts its recreation or open space value.

### **4 Private Recreational Lands**

Owners of recreational land are also eligible for taxpayer relief under state regulation. Chapter 61B applies to land not less than 5 acres that is maintained in its natural state. Allowed uses on the property include hiking, camping, nature study, boating, golfing, horseback riding, hunting, fishing, skiing, swimming, hang gliding, archery, and target shooting. In the City of Lowell, two properties are protected under Chapter 61B designation. One parcel is a private country club, the 18-hole Mt. Pleasant Golf Course, which has over 50 acres and is located in the western part of the city near the Chelmsford line. The second property, the United States Bunting Club, is located on Boylston Street near the Billerica town line and has approximately 11.5 acres. There is another private recreational golf club located on the Lowell-Tewksbury town line. Access to the site is through Lowell, but the majority of the property is located in Tewksbury.

### **5 Estates**

There are no large properties in Lowell that are classified as estates.

### **6 Major Institutional Holdings**

Several private and non-profit institutions occupy large parcels of land throughout the city. Many of these parcels have recreational facilities on their premises that could be used by residents. A priority is to work with these landowners to open up these facilities to the general public. The Greater Lowell YMCA owns 5 acres of land. The Lowell Boys Club owns 2 acres of land that contains recreational space for sporting activities for school age children. The Lowell Girls Club also owns several acres of land.

The region is fortunate to have several fine hospitals that provide extensive medical care. These facilities also occupy large tracts of open space. Lowell General Hospital owns 64 acres of land. Saints Memorial Medical Center owns 8 acres of property adjacent to the Merrimack River. Other large institutional landholders in the City include churches, private parochial schools and several non-profit groups.



**Saints Memorial Medical Center**

*Photo – DPD*



Hadley Park

Photo – DPD

## B Public and Nonprofit Parcels

### 1 Public Conservation and Recreation Resources

#### a City Owned Lands

City properties are under the management of the following City authorities:

- Public School Department
- Parks and Recreation Department
- Fire Department
- Water Utility Department
- Public Works Department
- Wastewater Department
- Inspectional Services Department
- Cemeteries

The following table lists city owned open spaces and parks. This is not a complete inventory of city owned land. It only describes the available parks and recreation land that are available to all residents.

Site Name	Acres
Adams Park	1.00
Alumni Field	5.50
Amory Park	0.75
Avenue A Playground	2.78
Bartlett Field	4.00
Bourgeois Park	0.25
Callery Park	5.50
Campbell Park	2.53
Carter Street Playground	0.50
Cawley Park	13.92
Christian Hill Reservoir	14.96
Clemente Park	3.00
Colburn Park	0.25
Commonwealth Avenue Playground	0.50
Cross Street Park	0.20

Site Name	Acres
Crowley Park	0.50
Daley School Field	12.00
Doane Street Park	1.40
Ducharme Park	0.51
Durkin Playground	1.55
Edwards Soccer Field	8.00
Father Kirwin Park	1.54
Father McGuire Playground	4.58
Fayette Street Playground	0.70
Fells Playground	0.30
Finneral Park	0.08
First Street Playground	1.48
Flaggies Park	4.50
Fort Hill Park	34.40
Gage Field	21.08
Hadley Field	5.88
Highland Park	19.60
Hovey Field	8.54
Jollene Dubner Park	2.72
Kitteridge Park	1.80
Knott Park	1.17
LeBlanc Park	60.00
Lincoln Square Park	0.50
Lucy Larcom Park	1.27
Manning Field	11.00
McInerney Playground	0.35
McPhearson Playground	8.57
Monsignor Keenan Playground	0.33
Moody Street Playground	1.00

Site Name	Acres
Morey Street Playground	1.20
North Common	3.00
O'Donnell Park	14.56
Oliveria Park	1.83
Pawtucket Memorial Park	1.20
Perry Playground	0.32
Rotary Club Park	0.86
Shedd Park	52.55
South Common	20.31
St. Louis Playground	9.30
Stratham Playground	5.00
Tyler Park	2.00
Varnum Park	0.50
Veterans Memorial Park	0.09
Wang Parcel	20.00
Wannalancit Park	2.00
Western Canal Project	4.00
<b>Total</b>	<b>409.71</b>

In order to meet the open space needs of Lowell residents, the City has recently undertaken measures to provide additional open space and recreational facilities. Aside from the accomplishments listed in the Introduction, in 2000, the City Council unanimously voted to use the proceeds from the sale of 1095 Westford Street, a commercial piece of land, for the acquisition, design and construction of the Concord River Greenway. The City received \$875,000 from the sale.

Tax possessions are under the jurisdiction of the City. These buildings and parcels of land may be developed to meet the recreational needs of residents. Under current regulations, a tax title property may be sold to a private party. City agencies can comment on the parcel in question and can recommend for or against the purchase. This plan recommends that when the City acquires several parcels at a time, a list and description of the parcels be circulated to various departments for comment. This will allow the recreation department to identify parcels suitable for open space use and automatically take that parcel off the

list of for sale properties. By pursuing this procedure, the various departments will know firsthand what parcels are available and make provisions so that appropriate parcels are kept in the City's possession.

#### **b State and Federally Owned Lands**

A vital asset to Lowell and the towns of Dracut and Tyngsborough is the presence of the 1,015-acre Lowell-Dracut-Tyngsboro State Forest located in the northwest portion of Lowell. This major resource provides a variety of recreational opportunities such as biking and mountain biking, hiking, nature walking, picnicking, fishing, birding, field sports and winter sports such as ice skating, sledding, and cross-country skiing. State lands are predominately under the administration and management of the Massachusetts Department of Conservation and Recreation, University of Massachusetts Lowell, and the Department of Public Works (DPW). DCR properties include much of the Locks and Canal areas and the state parks. DCR maintains and operates the 1,015-acre Lowell-Dracut-Tyngsboro state forest as well as the 118-acre Lowell Heritage State Park. These two open spaces allow for a plethora of active and passive recreational activities for all ages and abilities.

The Lowell Department of Planning and Development is petitioning the state to transfer the title of several parcels of land along the Merrimack River to DCR. This will enable DCR to complete the construction of a path that will begin near the Duck Island Treatment Plant and end near the Tyngsborough town line. This recreational link will greatly enhance opportunities for residents north of the Merrimack River. It will provide a nearly continuous park along the bank of the river, and will provide a site for walking, running, picnicking as well as a new boat launch.

Federal properties consist primarily of United States Government buildings including the Courthouse, Postal Facility, and National Park Service property. These comprise of only a very small percentage of the land area in Lowell.

#### **2 Non-profit Lands**

At the time of writing of the 1994 Open Space and Recreation Plan, there was no protected land owned by a private not-for-profit organization in Lowell. Since then, a few local land trusts have been able to successfully acquire land for permanent protection.

The Lowell Parks and Conservation Trust owns the following property:



Address	Total Area
181 W. Meadow Rd.	3.40 acres
16 Nicole Dr.	1.88 acres
Totman Street	1.58 acres
391 Pawtucket St.	37,196 sq. ft.
95 & 99 Fairmount St.	22,728 sq. ft.
Spalding House	5,000 sq. ft.
36 Merrill St. (part of Jollene Dubner Park)	2,700 sq. ft.
Total	<b>8.41 acres</b>

The Friends of the Forest owns the following:

Address	Total Area
47 Charant Rd (Adjacent to the Lowell-Dracut-Tyngsboro State Forest)	6.85 acres

### 3 Other Public Unprotected Lands

The University of Massachusetts-Lowell is a major landholder in the city. The State University occupies approximately 155 acres of land that it uses for academic, housing, university support and recreational facilities. The university has embarked on an expansion plan to be called the Mill campus, which will result in the development of 31.3 acres of industrially zoned land. The land, previously occupied by the Lawrence Manufacturing Company, will be redeveloped into uses that will be owned by the university and private investors.

The plan also calls for extensive use of pedestrian links around the campus buildings to minimize vehicle traffic. Other added recreational facilities include 3 new tennis courts, a baseball diamond, and a football/soccer field. The university also owns a four-acre parcel along the north side of the river that currently houses a soccer field, which sees heavy use by an area soccer league. Unfortunately, this parcel of land is subject to seasonal flooding as it is located in the floodplain.



UMass Lowell, North Campus

*Photo – DPD*

#### **A Description of Process**

The City of Lowell's Division of Planning and Development designed an open space and recreation survey in 2002. The survey was based on a model in "Parks, Recreation, Open Space and Greenway Guidelines" by Mertes and Hall. The City received a grant as part of the Route 3 widening project and hired consultants at Davidson-Peterson Associates (DPA) of Kennebunk, Maine, to conduct phone interviews using the survey. DPA surveyed a total of 261 Lowell residents on November 1<sup>st</sup> and November 10<sup>th</sup> in 2002. The interviews were designed to reach a wide range of people and were conducted in English, Spanish and Khmer. A total of 224 of the respondents were recruited at random. In addition, 37 Cambodians were recruited to augment and assure a robust sample of this ethnic group. See Appendix C for the executive summary of the survey results.

In March of 2005, the City held a public meeting to present a draft of the goals and objectives of the Open Space Plan. Notices were put in the local newspaper and sent to the various neighborhood organizations to inform residents about the meeting. Interested members of the public and neighborhood representatives were present and contributed constructive feedback and comments. A draft was placed online on the City's website to solicit further feedback from the public. The City accepted public comments throughout the month of April after the draft was first presented in March. The final version of this plan was presented to Mayor Armand Mercier, the Lowell City Council, the Conservation Commission, and the Planning Board for approval, as well as the regional planning authority, the Northern Middlesex Council of Governments.

#### **B Statement of Open Space and Recreation Goals**

- Develop an active public policy toward open space preservation.
- Develop and maintain existing parks and recreational spaces.
- Create links between open spaces within the City and to regional open space systems.
- Protect and enhance Lowell's historical and ecological heritage, including historic resources, rivers, wetlands, and wildlife habitats.
- Encourage an overall "greening" of the City.
- Build community pride and unity through an increased use and appreciation of Lowell's open spaces, recreational services and natural environments.



## SECTION 7

### ANALYSIS OF NEEDS

#### A Summary of Resource Protection Needs

Resource protection is based on the need to protect existing natural and historical resources such as open spaces, wetlands, rivers, aquifers, historic resources, and scenic views that are finite in quantity. Once these resources are destroyed by manmade activities, they cannot be replaced, precluding their use or enjoyment by future generations. Efforts at the local level must be directed to preserve the natural and historic resources that still remain.

##### 1 Open Space

Open space is a very important resource that requires protection for both conservation and recreation purposes. Preservation of open space provides two benefits: on the one hand, it can provide playing fields and walking paths and on the other hand, it can protect valuable surface and subsurface natural resources such as wildlife habitats and ground water. Open space protection also serves other important functions such as reducing the cost of government services by limiting residential development and increasing property values for adjacent landowners. An added benefit of open space preservation is that conservation and recreation uses can occur simultaneously in one location. For example, a riverbank corridor can serve a conservation purpose by protecting the river from runoff from over-development while also providing a hiking or biking corridor, and a tranquil place for fishing and bird watching.

##### 2 Wetlands, Woodlands and Wildlife Habitats

Although some of Lowell's wetlands are on city or state-owned properties, this does not guarantee that they are fully protected from encroachment. More significantly, most of the wetlands in the City are on privately owned land where the potential for nearby development is a far greater problem. Since there are so few wetlands remaining in the City, strong protection measures should be instituted to prevent further degradation. Current regulations such as the Wetlands Protection Act protect wetlands from encroachment to an extent, but the best policy for protecting sensitive wetlands would be to institute permanent conservation easements on properties containing wetland resources.



Scenic pathway along the Merrimack River  
*Photo – Higgins & Ross*

### 3 Water Quality

Drinking water supplied by the Merrimack River is distributed to all users in the City as well as users in other towns. Surface water from the Merrimack River as well as the Concord River is also an important recreational resource. Therefore, maintaining a high water quality standard is vital and should be a priority of this Plan. Water quality has been a particular problem in the past as upstream discharges and users in the City have contributed to its poor quality. However, local, regional, state, and Federal efforts to clean up the Merrimack River, and the positive impact of the wastewater treatment plants in Nashua and Manchester, NH have helped to greatly improved the City's water quality.

The Concord River also has a history of pollution due to municipal and industrial waste discharges. Lowell not only needs to concern itself with discharges in its own boundaries but also from upstream users in Billerica. Since the quality of Lowell's surface water depends significantly on upstream activities, the City should establish a system to monitor pollution, and strive to establish appropriate controls on upstream polluters. Such measures will help maintain water quality and allow continued use of the river by all users.

### 4 Floodplain Areas

Periodic flooding in Lowell has been known to cause severe and expensive property damage. As in many urban areas, Lowell's floodplains have also given way to developmental pressures. Flooding problems have increased even further as wetlands, which provide valuable flood storage, have been filled to allow for more development. The Black Brook watershed, which has acute flooding problems, is a classic example of improper development of a floodplain area. Lowell needs to develop stricter regulatory controls over development in the floodplains to maintain riverfront open space and reduce damages caused by flooding.

### 5 Historic Resources and Scenic Views

Historical and scenic locations are resources that shape Lowell's character and promote residents' interest and pride in their surroundings. However, pleasant landscapes and historic areas are easily destroyed when their values are not recognized and actions are not taken to protect them.

Lowell has set a national precedent in its efforts to preserve the historic architecture and canals built during the Industrial Revolution. A national and state park, as well as local historic districts, have been formed to maintain historic structures and to educate the general public about the importance of the technological advances that were developed during this period of history. Other properties that are identified as having historic significance should be protected by incorporating them into historic and neighborhood review districts or having them designated as individual landmarks. The initiative for such actions, however, should originate in the neighborhoods.



Canalside Walkway

*Phiti – Higgins & Ross*



Lowell's parks are also significant cultural and historical resources. Lucy Larcom Park, the City's first park, was created to preserve "breathing spaces" in the city when mills and boarding houses rapidly developed throughout Lowell. The North and South Commons were set aside for similar reasons. Several of the parks in the City were developed by the Frederick Law Olmsted landscape architecture firm. Tyler Park, designed by Charles Eliot, Olmsted's partner, was accepted as a National Register Historic District. The firm also created Rogers Fort Hill Park, Belvidere Park, the North and South Commons, Pawtucket Boulevard and Monument Square. These parks should be publicized and recognized for their important cultural and historical values.

Lowell's rivers, streams, and canals are among the City's most significant scenic features. They should be protected and enhanced by the City through the establishment of easements and land acquisition programs as well as long-term maintenance solutions. The Lowell Pride Adopt-an-Island Program should be extended to include an Adopt-a-Stream program to encourage their routine clean up by business and civic groups. The Lowell National Historical Park has also created an Adopt-a-Canalway program to help maintain the park areas near the canals. These types of efforts will help to improve their appearance and discourage further dumping into Lowell's water resources.

## **B Summary of Community Needs**

### **1 National Recreation Parks Association Standards**

The City of Lowell currently has 410 acres of public open space dispersed throughout the city. (This total does not include the Lowell-Dracut-Tyngsborough State Forest or cemeteries.) Thus, Lowell has approximately 3-5 acres of developed open space for every 1,000 residents. The National Recreation Parks Association (NRPA) has developed a set of guidelines for all communities to follow regarding the amount and location of various types of parks. According to the NRPA, Lowell should have between 6.25 and 10.5 acres of developed open space and parkland allotted for every 1,000 residents.



Olga Nieves Playground

*Photo – DPD*



*Photo – Higgins & Ross*

Based on an inventory list compiled in 2000, the following public facilities are available in Lowell:

**Inventory of Recreational Facilities in Lowell**

Activity	Number of Facilities
Basketball Courts	39
Handball Courts	4
Softball Fields	23
Tennis Courts	29
Swimming Pools	9
Tracks	5
Volleyball Courts	8
Baseball Fields	27
Football / Soccer Fields	13
Skateboard Parks	3

The National Recreation Parks Association (NRPA) also has recommendations for the number of various recreational facilities that a city such as Lowell should have. Based on these standards, Lowell was found to be short in the following:

Activity	Number of Facilities
Handball Courts	6
Softball Fields	5
Tennis Courts	11
Volleyball Courts	11
Baseball Fields	1
Soccer Fields	1

## 2 Public Opinion Survey

According to the phone survey conducted in 2002, the majority of Lowell residents (84%) participate in some type of recreational activity in Lowell. Most say that they walk or jog in the city at least once a year. Those who do participate in this activity do so frequently. Half say they walk or jog many times a year. A majority of residents (79%) also attend special events in Lowell parks at least once a year, and 49% say they attend an event a few times a year or more.

Residents feel that having sufficient recreational space is important, particularly for children. A majority, 76%, feel that providing play area for our youth is important. Fewer, but still more than half (57%), feel that offering recreational facilities for adults is important.

A majority of Lowell residents, 75%, also feel that preserving environmentally sensitive areas is important. Slightly fewer, 72%, feel that creating more natural areas such as parks and gardens is important. 69% felt that we need to plant more trees and flowers on city property.

Two thirds of residents feel that protecting open space in Lowell is important. However this is not as important to them as some other factors such as cleanup and maintenance of the neighborhoods and building natural areas.

Residents of Lowell would like the City to fix up existing parks and recreational areas or develop vacant, undeveloped, city-owned land into new parks and recreational areas rather than purchasing land and creating new parks and recreational areas. 64% of residents would rather see more money spent on supervised recreational activities with the existing parks than on developing new parks and recreational areas. See the table below for information on what type of activities residents wanted to the City to spend more and less resources on.

**Response From Survey Regarding Use of City Resources**

Activity	Spend More %	Spend Less %
Children's Playgrounds	57	4
Recreation Centers	57	4
Nature Areas	50	4
Open Play Areas	48	4
Jogging and Exercise Trails	42	9
Bicycle Trails	41	8
Beach Parks	36	10
Ball Fields	34	11
Basketball Courts	33	8
Swimming Pools	32	9
Skateboard Parks	28	24
Volleyball Courts	17	19
Boat Ramps	16	22
Tennis Courts	14	24

## **C Summary of Management Needs**

Currently, the most significant management need relating to open space and recreation in the City of Lowell is an oversight group that will administer and implement this Open Space Plan. Without a permanent Open Space Plan Committee, this document will only remain a document, and very few or none of its recommendations will materialize. Once this Plan is adopted, a committee should be created immediately. This advisory group should be diverse, comprising of residents, community leaders, and city workers and officials who are committed to open space and recreation issues. They will be responsible for bringing to life the objectives and action steps outlined here, and for updating this Plan again when the next 5-year mark approaches.

The City of Lowell will rely on its various departments, boards and community partners to oversee and implement the goals of this Open Space Plan in addition to a future Committee. In general, a lack of resources and funding in recent years has been a deterrent for these groups in accomplishing their open space and recreation goals. Particularly, the City's Department of Parks and Recreation has seen much of its funding reduced, forcing the department to only maintain the parks and recreational spaces that are in dire need. Thus far, the City has done its best given its budget, however for the future, a reallocation of resources and other sources of funding must be sought.

There is a lack of communication with neighboring communities regarding developments of regional significance. In some cases, a neighboring community might have land zoned for industrial use while the abutting land in the adjacent community is to be preserved for open space. These land uses clearly clash since any by-products of industrial use could negatively impact the open space. It is important that communities attempt to solve these types of differences so that open space protection does not stop at the town line. Lowell and its neighboring towns should work together on projects that affect the open space goals of different communities in the region.

## SECTION 8

### GOALS AND OBJECTIVES

The City of Lowell has identified the following goals and objectives to provide high quality passive and active recreational opportunities, and to protect the City's natural and cultural resources. The goals and objectives presented here are in no particular order of priority. This Plan has made a strong attempt to incorporate the views and concerns of the citizens of Lowell that were gathered during the survey and public participation portions of the planning process.

#### GOAL 1

**Develop an active public policy toward open space preservation.**

##### Objectives

- Appoint a committee to implement the Open Space Plan.
- Establish a comprehensive and long-term open space acquisition program for the City.
- Assist local land trusts in prioritizing and acquiring publicly and privately owned parcels in need of protection.
- Protect and acquire wetlands identified as having particular importance by fee, easement, restriction, donation or exchange.
- Seek more funding for open space preservation.

#### GOAL 2

**Develop and maintain existing parks and recreational spaces.**

##### Objectives

- Update the various parks that the City already owns.
- Ensure that City parks and recreational spaces are accessible to all residents.
- Ensure that playing fields and other recreational facilities support the needs of the population.
- Identify and improve the parks that are not being used to their potential.
- Improve formal programming at parks to increase public interest in these recreational spaces.



Lowell's Scenic Walkway Along the Merrimack River

*Photo – Higgins & Ross*



- Seek more funding for park maintenance and improvements.
- Implement creative solutions for park maintenance and involve neighborhood groups wherever there is interest.

### **GOAL 3**

**Create links between open spaces within the City and to regional open space systems.**

#### **Objectives**

- Keep informed and assist in regional open space plans and projects.
- Encourage the development of trail systems within Lowell that link with regional systems outside of the City.
- Move forward on the Concord River Greenway project with the Lowell Parks and Conservation Trust.

### **GOAL 4**

**Protect and enhance Lowell’s historical and ecological heritage, including historic resources, rivers, wetlands, and wildlife habitats.**

#### **Objectives**

- Preserve and protect Lowell’s water supply for public health.
- Develop a maintenance plan to preserve and clean up the canal ways.
- Continue to uphold and promote the Massachusetts Wetlands Protection Act.
- Work with the Massachusetts Historical Commission and the Massachusetts Natural Heritage and Endangered Species program to identify sensitive areas in need of protection.
- Establish a program for procuring funds to acquire, protect and improve sensitive areas.
- Work with the Massachusetts Historical Commission and the Lowell Historic Board to designate new federal and local historic districts.
- Continue communicating with federal, state and local agencies regarding rules and regulations regarding wildlife habitats and water resources.

### **GOAL 5**

**Encourage an overall “greening” of the City.**

#### **Objectives**

- Support the implementation of the Lowell Tree Ordinance.
- Continue supporting local land trusts and nonprofits in acquiring and preserving community open space.

- Focus greening efforts in the more urban and dense neighborhoods and on major gateways into the City.
- Create community gardens in neighborhoods that need more open spaces.
- Work with developers especially of large projects to create more open spaces, improve landscaping, and prevent unnecessary tree removal.
- Continue the creation of mini parks throughout the City.

## GOAL 6

**Build community pride and unity through an increased use and appreciation of Lowell's open spaces, recreational services and natural environments.**

### Objectives

- Increase residents' awareness of Lowell's open spaces, trails, natural resources, and recreational opportunities.
- Increase awareness of and promote education on open space and environmental issues.
- Support the City's Special Events Coordinator with the numerous festivals held in Lowell's open spaces.
- Support the Executive Director of the Cultural Organization of Lowell on projects relating to open space and recreation.
- Support the efforts of Lowell: A Flowering City



City Hall during the annual City of Lights festival

*Photo - Higgins & Ross*



## SECTION 9

### FIVE YEAR ACTION PLAN

The heart of any plan lies within its recommended course of action. The five-year action schedule found in this section is a recommended sequence of steps that residents, community partners, and City officials and boards should follow to achieve the goals and objectives.

Action	Implementation Year				
	1	2	3	4	5
<b>GOAL 1: Develop an active public policy toward open space preservation.</b>					
Look into the feasibility of adopting the Community Preservation Act in Lowell.	X	X			
Recommend that a percentage of tax title sales be placed into an open space acquisition fund.		X			
Work with local land trusts in acquiring land or placing conservation restrictions/easements on properties adjacent to the State Forest.	X	X	X	X	X
Permanently protect land at 520 Varum Avenue by donating parcel to a land trust or by placing a conservation easement.	X				
Integrate open space goals with municipal planning.	X	X			
Work with owners of large parcels on new development proposals to encourage open space preservation.	X	X	X	X	X

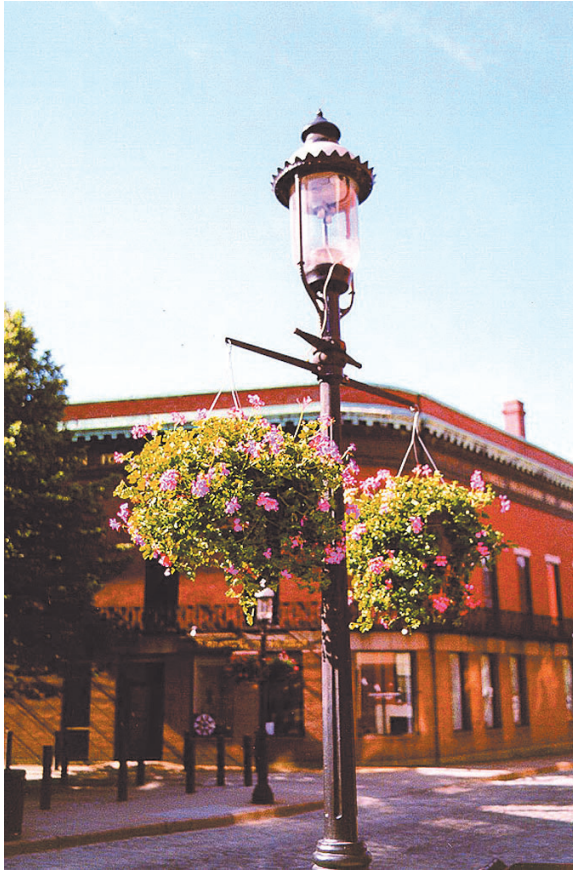
Action	Implementation Year				
	1	2	3	4	5
<b>Goal 2: Develop and maintain existing parks and recreational spaces.</b>					
<b>(See Appendix B for a list of proposed projects)</b>					
Allocate more funding to the Parks and Recreation Department for maintenance.	X				
Conduct a comprehensive assessment of parks and recreational spaces in the City and make recommendations for their improved use.	X	X			
Continue to follow the recommendations and guidelines set forth in the Parks and Recreation Department's Maintenance Management Plan.	X	X	X	X	X
Update outdated playground structures in existing City parks.		X	X	X	X
Ensure that City parks and recreational facilities are compliant with ADA regulations.			X		
Improve access to and increase public interest in the State Forest.	X	X	X		
Provide signage and develop a maintenance plan for the North Bank bike path (between Bridge and Aiken Streets).	X				
Work with residents and neighborhood groups to share the responsibility of maintenance.	X	X			
Encourage public agencies to share facilities.	X	X	X		
Look for year round use of facilities.	X				
Update facilities at Cawley Stadium.	X				



Action	Implementation Year				
	1	2	3	4	5
<b>GOAL 3: Create links between open spaces within the City and to regional open space systems.</b>					
Work with the National Park Service to create pedestrian trails and links between Riverwalk and Downtown Lowell.	X	X			
Acquire all necessary parcels and easements for the Concord River Greenway.	X	X			
Issue a bid to design the Concord River Greenway.	X	X			
Seek funding for the Merrimack River interceptor trail between Lowell and Tewksbury.			X		
Ensure regional bike trails are visible in the City through proper signage.		X	X		
<b>GOAL 4: Protect and enhance Lowell's historical and ecological heritage, including historic resources, rivers, wetlands, and wildlife habitats.</b>					
Establish a program for procuring funds to acquire, protect or improve sensitive areas.			X		
Develop a database of all vacant public and private properties with natural resource value, recreation potential or historical interest.		X			
Work with UMass Lowell in identifying ecologically sensitive areas and environmental resources.		X			
Identify and protect wildlife corridors through acquisitions and easements.		X	X		
Work with the various federal, state and local agencies responsible for the canal ways to develop a long-term maintenance solution.	X	X			
Implement the Long-Term CSO (Combined Sewer Overflows) Control Plan	X	X	X	X	X



The Riverwalk and park behind the Tsongas Arena  
Photo – Higgins & Ross



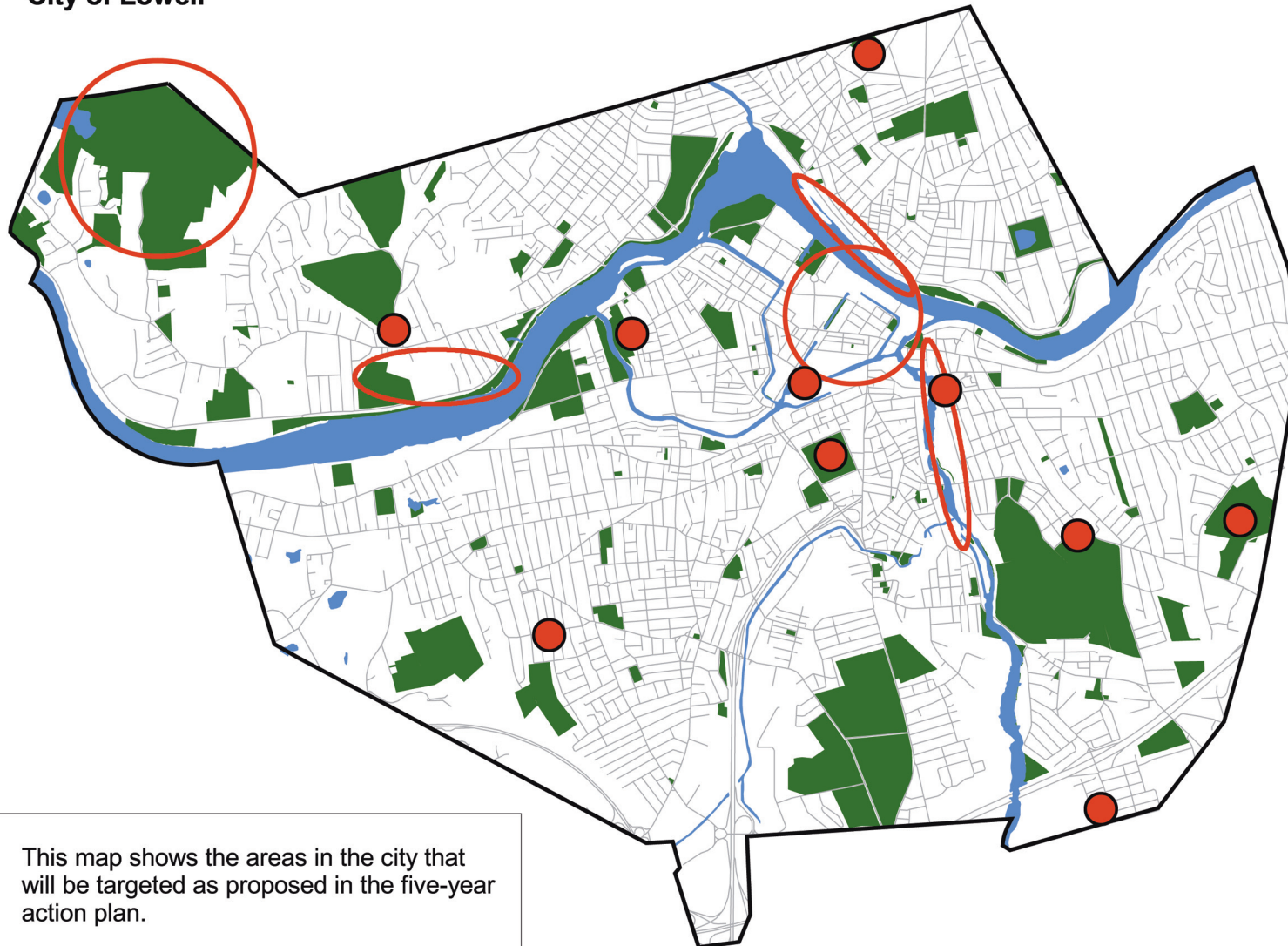
New hanging flower baskets in downtown Lowell  
Photo – DPD

Action	Implementation Year				
	1	2	3	4	5
<b>GOAL 5: Encourage an overall “greening” of the City.</b>					
Hire a tree warden/certified arborist to implement the Lowell Tree Ordinance.	X				
Develop a tree memorial program.		X			
Continue to support the Lowell Parks and Conservation Trust in their urban forestry program.	X	X	X	X	X
Develop a community garden program.		X	X		
Conduct a tree hazard inventory.	X	X			
Look into the feasibility of introducing tree preservation provisions to the Lowell Zoning Ordinance.			X		
Require that projects undergoing Planning Board Site Plan Review be approved by a City landscape designer.			X	X	
Encourage implementation of Xeriscape principles within the City.			X		
Encourage the development of mini parks and canal walks in the Hamilton Canal District.		X	X		
Continue the summer hanging plants program in the Downtown.	X	X	X	X	X

Action	Implementation Year				
	1	2	3	4	5
<b>GOAL 6: Build community pride and unity through an increased use and appreciation of Lowell's open spaces, recreational services and natural environments.</b>					
Publish and distribute multi-lingual literature that identifies the parks and open spaces in Lowell.			X		
Create a map of trails in Lowell and regional connections for bicyclists.	X	X			
Work with the local media and community organizations to increase awareness of open space and environmental issues.	X	X	X	X	X
Add programs to school curriculums to increase students' appreciation of open spaces and awareness of ecological issues.	X	X			
Certify existing vernal pools in the State Forest. Institute a vernal pool identification program through the schools.	X	X			
Encourage use of public open spaces for environmental educational programs and events.	X	X	X	X	X
Develop a brochure identifying all handicap accessible recreational facilities in the City.	X	X			

# Five-Year Action Plan

City of Lowell



**A Local Review**

Copies of the 2005 Open Space and Recreation Plan were sent to:

- The Lowell Planning Board
- The Lowell Conservation Commission
- The Northern Middlesex Council of Governments
- Armand Mercier, Mayor of Lowell

**B Open Space Initiative Public Opinion Survey**

See Appendix C.





## SECTION II

### REFERENCES

The following references were used to complete the 2005 Open Space and Recreation Plan:

**City of Lowell, May 2003. Comprehensive Master Plan**

**Davidson-Peterson Associates**, November 2002. The City of Lowell: Open Space Initiative Survey

**Northern Middlesex Council of Governments**, December 2002. The Greater Lowell Regional Open Space Strategy: Analysis and Recommendations

The Open Space Planner's Workbook available online at

**<http://www.state.ma.us/envir>**

Massachusetts Statewide Comprehensive Outdoor Recreation Plan (SCORP) online at **<http://www.state.ma.us/envir>**

Executive Office of Environmental Affairs online at **<http://www.state.ma.us/envir>**

**Community Preservation Resource CD**, Fall 2000. Municipality of Lowell

**U.S. Department of the Interior**, U.S. Geological Survey Surficial Geology



# APPENDIX A

## STREETS IN LOWELL WITH CHRONIC FLOODING PROBLEMS

### As determined by the Federal Emergency Management Agency

Acton Street	East Avenue	Parkview Avenue
Aiken Street	East Industrial Avenue	Pawtucket Drive
Alcott Street	Eleanor Drive	Pawtucket Street
Bachman Street	Father Morrisette Boulevard	Pershing Street
Baldwin Street	Felker Street	Phoenix Avenue
Beaver Street	Hadley Street	Plain Street
Bedford Avenue	Howard Street	Pratt Street
Berkeley Avenue	Industrial Avenue	Princeton Street
Billerica Street	Industrial Avenue East	Reiss Avenue
Bolton Street	Joffre Street	Riverview Avenue
Bridge Street	Lafayette Street	Rosemont Street
Broadway Street	Lawrence Street	Sayles Street
Burnside Street	Lexington Avenue	School Street
Cabot Street	Lincoln Street	Shirley Avenue
Caleb Street	Locust Street	Sparks Street
Campaw Street	Magnolia Street	Stockbridge Street
Central Street	Malden Street	Suffolk Street
Clifton Street	Market Street	Tower Drive
Commonwealth Avenue	Martin Street	Townsend Drive
Cornell Street	Melrose Avenue	Webber Street
Cricket Club Road	Merrimack Street	Wentworth Avenue
Crosby Street	Middlesex Street	West Aldea Street
Delaware Avenue	Moody Street	Western Avenue
Delmont Avenue	New York Street	Westmoreland Street
Dunbar Avenue	Newhall Street	Whipple Street
Duren Avenue	Old Ferry Road	Windward Road
Dutton Street	Ostrander Avenue	Winslow Avenue
East Aldea Street	Ottawa Street	Wood Street



## APPENDIX B

### LIST OF PROPOSED PROJECTS

#### Proposed Park Improvements and Expansions Over the Next Five Years

Information provided by the Parks and Recreation Department

<b>Timeframe</b>	<b>Project</b>
Summer 2005	<b>Bartlett Field Bleacher Project (Pawtucket Street):</b> Remove all bleachers, improve landscaping, and restore area.
Summer 2005	<b>Renovate South Common Pool House (South Street):</b> Filtration system, etc.
Fall 2005	<b>Crowley Park Renovation Project (Wedge Street):</b> The city is scheduled a complete renovation of the park including sod, irrigation, lighting, new playground equipment, sidewalks, etc.
Spring 2006	<b>Remove Health Camp Pool at LeBlanc Park (Gumpus Road):</b> The city is scheduled to remove the pool, expand the parking area and install a second baseball field complete with sod, irrigation, back stop, fences, etc.
Summer 2006	<b>New artificial turf at Martin/ Alumni Complex at Cawley Stadium (Douglas Road):</b> The city is scheduled to renovate the football field with related improvements.
Summer 2006	<b>Fayette Street Park Improvement (Church Street):</b> The city is scheduled to install a multi-purpose playground structure with related improvements.
Fall 2006	<b>Ducharme Park Renovation Project (Commonwealth Avenue):</b> The city is scheduled to install sod, irrigation, and related landscaping and a multi-purpose playground structure at the site.
2007/2008	<b>Shedd Park Water Playground Area (Nesmith Street):</b> To install the city's first water park complete with bathrooms, changing area and various water sprinkler stations. Also, remove pool at Shedd Park and landscape as needed.



- 2008/2009      LeBlanc Park Playground Improvements (Gumpus Road):**  
To install a multi-purpose playground with related landscaping improvements.
- 2009/2010      Hovey Softball Field Renovations (Hildreth Street):**  
To transform 2 undersized softball fields into one regulation softball complex complete with sod, irrigation, fencing, parking area and all related improvements.

## OPEN SPACE INITIATIVE SURVEY: EXECUTIVE SUMMARY

Prepared by Davidson-Peterson Associates  
November 2002

### Executive Summary

#### Introduction

The purpose of this research is to uncover public sentiment regarding the issue of protecting open space and maintaining recreational services and areas in Lowell. The results from this survey will be used in the City's open space plan that is currently under development.

The following results are based upon the responses of a sampling of 261 Lowell residents participating in a telephone survey. Interviews were conducted between November 1, 2002 and November 10, 2002. Interviews were conducted in three languages: English, Spanish, and Khmer.

#### Sample Breakdown

A total of 224 of the respondents in this survey were recruited at random. In addition, a listed sample of Cambodians was used to augment and assure a robust sample of this ethnic group. A total of 37 Cambodian respondents were recruited through the purchase of a telephone list.

When we compare the ethnic and neighborhood mix of this sample to that of the Census and Census figures adjusted by the Lowell Division of Planning and Development (adjusting the Cambodian population by school enrollment), we see that our data, excluding the Cambodian augment, closely matches the Census on Hispanic, Black and Other representation. Including our Cambodian augment, our sample closely matches the DPD's adjusted census figures. Given that the augmented data more closely matches the adjusted US Census data, we will use data that includes the Cambodian augment for the remainder of this report.

Population %				
	Census %	Resident Survey (ex. Augment) %	Adjusted Census %	Resident Survey (Incl. Augment) %
Caucasian	55	73	57	63
Hispanic	14	12	14	10
Asian	16	8	22	20
Black	4	4	4	3
Other	11	3	3	2

**Note:** Unlike the survey of the U.S. Census, this survey utilized a combined race/ethnicity question for ease of analysis. Respondents were asked to choose the *one* race/ethnicity that best describes them. Therefore, for example, residents chose Hispanic *or* Caucasian – versus in the Census possibly claiming both Hispanic *and* Caucasian.

To prevent the double counting of Hispanics in the Census data, we assumed that Hispanics also claimed Caucasian race. We then reduced the Census Caucasian population by this amount.

By neighborhood, the respondents in this survey also closely match that of the U.S. Census. Please note that while this survey reports lower inner-city neighborhood percents, it's "don't know/other" is quite high. Reviewing the demographics of this group reveals that they are more likely to be Hispanic or Asian.

#### Estimated Population Percentages

Neighborhood	% Per Census	% Per Survey
The Acre	11	5
Back Central	5	1
Belvidere	8	8
Centraville	9	10
Christian Hill	6	2
Downtown	4	7
The Highlands & Middlesex Village	17	23
Lower Belvidere	2	1
Lower Highlands	11	3
Pawtucketville	14	15
South Lowell, Sacred Heart, Riverside, Swede Village	12	10
Don't Know	0	3
Other	0	11

## Survey Highlights

The findings from this survey of Lowell residents may be summarized as follows:

- The majority of Lowell residents participate in some kind of recreational activity in the City. The activities mentioned most frequently are walking or jogging and attending special events in the park. Caucasian residents are more likely to report participating in multiple activities as compared to Asian or Hispanic residents.
- Most Lowell residents use the public resources offered by the City. Although Caucasian residents are more likely to participate in multiple activities as compared to Asian or Hispanic residents, they are less likely to use Lowell's public resources.
- The public park is the recreational facility used most frequently by Lowell residents. Caucasian residents are more likely to use a private yard or a health or fitness center than Asian or Hispanic residents.
- Although many residents feel protecting open space is important to the quality of life in the City, this received less support than: cleaning up the neighborhoods by keeping streets and sidewalks clean; encouraging building maintenance and upkeep of private property; and providing recreational areas for children.
- The Parks Department often faces difficult trade-offs in managing recreation services for the residents of Lowell. Several of these trade-offs were presented to Lowell residents who were asked to choose which management scenario they would support.
  - Residents' support for developing smaller parks in neighborhoods versus developing large city-wide parks is divided. Caucasian residents are more likely to support the development of smaller, neighborhood parks while Asian residents are more likely to support the development of larger, city-wide parks.
  - Lowell residents are more supportive of developing existing park areas and spending more money on supervised recreation activities within existing parks than purchasing new land or spending money on developing new park and recreation areas. However, a sizable minority are in favor of developing vacant, undeveloped, city-owned land into new parks and recreational areas.
  - Residents are interested in the City maintaining control over all parks and recreational areas, as opposed to allowing citizen groups to take over this function.

- In this survey, interviewers explained how the Parks Department must spend "*limited city funds generated from tax collection*" to maintain recreational areas. They were then asked if the Department should *spend more of its budget, less of its budget or about the same* to maintain certain recreational areas.
  - Lowell residents would support more spending for recreational facilities, particularly for children. More than half say the City should spend more of the City's budget on children's playgrounds and on recreation centers.
  - More residents would support more spending on general open areas for recreation than spending on facilities for specific recreational activities.
  - Compared to Caucasian residents, Asians and Hispanics are generally more positive on allocating more of the City's budget to recreational resources.
  - Likewise, residents with children in the household are more likely to support spending on recreational areas since they are more likely to use Lowell's public resources versus households with no children.
- Residents are divided on their support for an increase of 1-3% in their property tax to support parks and open space in Lowell. This is consistent among all groups, including those who say they would support spending more of the City's budget on recreational activities in the City.

### Conclusions and Recommendations

- In improving the quality of life for Lowell residents, the City should focus on:
  - Keeping the City clean by keeping streets and sidewalks clean, as well as encouraging building maintenance and upkeep of private property; and
  - Providing more recreational areas, particularly for children.
- In managing the parks and recreational services in Lowell, the Parks Department should focus on current park resources by:
  - Developing existing park areas;
  - Spending more money on supervised recreation activities within existing parks; and
  - Maintaining control over the parks and recreational areas.
- There are differences in the use of recreational activities and services among different ethnic populations in the City. The Parks Department should be aware of these differences to ensure the needs of all groups are considered in developing strategies to maintain and develop park resources.
- Although there is some support for spending more money on recreational activities, the City needs to explore ways to increase resident support for a property tax increase or, alternatively, explore ways to redistribute City funds to pay for these activities.





John F. Cox  
**City Manager**

**Lowell City Council**

Armand P. Mercier  
**Mayor**

William F. Martin Jr.  
**Vice Mayor**

Councilor Edward P. Caulfield	Councilor Richard P. Howe
Councilor Eileen M. Donoghue	Councilor Rita M. Mercier
Councilor Rodney M. Elliott	Councilor James L. Milinazzo
Councilor Rithy Uong	

**Conservation Commission**

David B. Desmarais  
**Chairman**

James Armstrong	F. Christopher Zacharer	Charles Gill
Louisa Varnum	Frank McCabe	John Zagarella

**Division of Planning and Development**

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**Assistant City Manager/DPD Director**

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Tom Bellegarde  
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Stephen Stowell  
**Administrator, Lowell Historic Board**

Mark Young  
**Executive Director, Wastewater Utility Department**

Daniel Lahiff  
**Executive Director, Water Department**

Steve Duchesne  
**Operations Superintendent, Water Department**